









# HORSES FOR PLEASURE OR FOR SHOW



The Hackney is a harness horse, and like the French Coach Horse is showy rather than swift. The Arabian is was developed in the bleak Shetland Isles, and the Welsh pony in the mountains of Wales. Children love them.

Pictures from Photographs by Haas, New York

# The Book of Knowledge

The Children's Encyclopædia

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# The Book of FAMILIAR THINGS



where the tip of a fountain p a comes from.

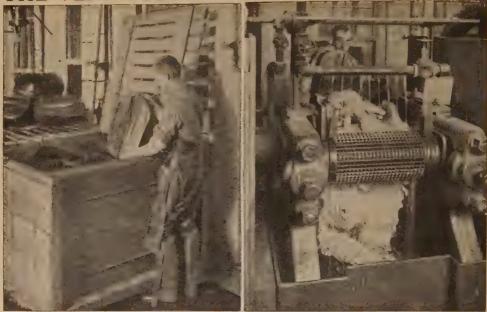
OU pick up your CONTINUED FROM pen to write a letter and put it down again, and perhaps, except for the words that writes, it has never said a word to you. Yet a pen, which has been in the history of the world mightier than the sword, has in it something of the elements of which the world is made, something of the busy life of a great workshop, and something of the quiet feeling of a library.

Most of us use the fountain pen today though the quill pen is still used by a few old-fashioned people. Our fountain pen is new, but parts of it are older than the first bird on which feathers for quill pens grew. Its nib is of gold, an ancient metal, the search for which has led men to open up distant lands which, but for gold, might still be desert wastes. The nib is not all gold; it has a tip of iridium. This is a rare and costly metal won from the steeps of the Ural Mountains, and is of enormous age. It tips the pen which writes a letter that we send across the world; it tips the compass that guides the ship carrying the letter; it tips the contact-points of the telegraph which bears the message that the ship with our letter is coming.

The barrel of our fountain pen has a distinction that we may never have thought of-it is both vegetable and mineral. It comes partly from a great forest, partly from the crater of a volcano. The barrel is made of vulcanite,

ebonite which is rubber made hard by the addition of sulphur. You may read elsewhere how an inventor found out how to make rubber hard.

As early as 1835 fountain pens were made in England, but in most of them the ink supply was bad and When the writer needed irregular. fresh ink he had either to press a projecting button, turn a nut, or loosen a spring. In 1884 a patent was granted to L. E. Waterman for a self-acting underfeed pen. Under this pen ran a small rubber bar containing a groove and three fire slits at the bottom. Modern pens are based on the same principle. Let us examine our fountain It consists of four pieces of hard rubber and a gold pen. handle containing the supply of ink is in two pieces, connected with a screw joint, so that it can be easily taken apart for filling. The gold pen is held in the point section of the barrel by a third piece of rubber, the feed bar, which also carries ink from the reservoir to the pen. As the ink is used, air fills up the barrel. During the act of writing the ink is drawn from the reservoir by what is called capillary attraction, about which we may read in the BOOK OF KNOWLEDGE, through the feed to the pen point. When we cease writing the flow stops, too. The fourth piece of rubber is the cap, which is needed to protect the pen and keep the ink from drying when not in use.



Most of us use fountain pens. In making one of these, india-rubber is used, and this has first of all to be washed by hand, as shown on the left, and then ground between corrugated rollers, as on the right.



The rubber is then passed several times between heated steel rollers, upon which sulphur is constantly being poured, and the sulphur mixes with the rubber. From this mixture the barrels and caps are made. \$\limins\$\left\{\sigma\left\

# HOT STEEL RODS TO MAKE THE BARREL



The rubber is rolled into a thin sheet as shown in this picture, which, with the other pictures on these pages, was taken in the factory where the famous Waterman pens are made. It is then cut into strips,





On the left we see a workman rolling the rubber round hot steel rods to make barrels for the pens; on the right the work is being done by machine. The barrels are forced out in a continuous string.



The rubber on each rod is covered with tinfoil to keep it in shape. The rods are then placed in ovens with more sulphur, after which the steel rods are withdrawn, and the tubes cut by a revolving saw.





The tinfoil is next scraped off on a lathe, as shown on the left, and on another lathe the inside of the tube, or barrel, is cut smooth, as seen on the right. Afterwards, the screw thread is cut on the barrel. 





The nib of a fountain pen is of gold, and the man in the picture on the left is melting gold and mixing it with silver and copper to harden it. After it has been cooled in molds, it is rolled into thin strips.



The flat shapes for the nibs are then stamped out by a machine like that which this man is working. A groove is made at the tip, so a point of iridium can be joined on. Iridium is a hard metal that wears well. <del>~~~~~~~~~~</del>5<sup>8</sup>79<del>~~~~~~~</del>

# POINTS FROM THE MOUNTAIN



The points are placed by hand on the tips of gold nibs for the best pens, and afterwards fused on. The man uses a magnifying glass in putting on the tiny point. The nib is then rolled, slit, and burnished.





The man on the left is grinding the point of the nib. This is a very important and delicate operation, and upon it depends the usefulness of the pen. After the grinding, the nib is handed to the polisher. 

# THE PEN IS READY TO MEET THE PAPER





After the barrel has been smoothed and the screw-thread cut upon it and upon the nib-holder, the two parts are put together and tapered as shown in the first picture on the left. The pen is then polished.



The name is next printed on the barrel, and then this machine chases the barrel with the design so familiar to users of this particular make. The cutting is done by means of tiny diamond points.





The gold nibs and the little feed rods that carry the ink to the nib are then fitted into the barrels as shown on the left, and after the pen has been finally tested, as shown on the right, it is ready for use.

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# HIS MAJESTY OF THE DESERT—THE KING OF BEASTS GOES FOR A WALK



with the roar that brings terror to man and beast, In this picture we see the lion taking a walk, Night is the working time of the king of beasts, but often the lion will wake up in the day and romp with his family. I fill the air with his cries, and make the country resound Reproduced by permission of Messrs. C. B. Clifford & Co. such a walk, especially if the day be gloomy, the lion will fill the air with his cries, and

# The Book of NATURE



# A DAY IN A LION'S LIFE

WHEN we speak of a day in a lion's life, we must take the whole twenty-four hours, for night is the working time of the king of beasts. He is not one of the home-making animals of which we have read. He loves

marshy country where there is abundance of long reeds or high grass, in which he can crouch. But he is also found in the desert, in which he is happy if he can find the shelter of a rock, or a thick, thorny bush, where he can sleep away the sunlight without being disturbed. He is not lazy, unless overfed. During the day he may wake up and have a romp with his wife and children, while if the day is cloudy and overcast he will roar from time to time, but not with the same violence as at night.

The day passes, the sun sinks from sight, night descends upon the earth. The lion gets up and lopes off from his lair out into the open. He can see well in the dark; nearly all animals and many wild birds can. The only thing he really fears is man. Therefore, our lion feels himself king of the

As he walks or trots along, he puts his head low, brings his mouth almost to the earth, and roars. A music master ought to love a lion, because it is such a master of the art of

increasing and decreasing sound.
There is no sheet of music printed for lions bearing the words crescendo and diminuendo to tell them when to increase

their note and when to make it gradually softer. But the lion knows how to do it without printed instructions. The first roar is comparatively soft, the second is louder, the third is louder still, and the fourth makes the very earth tremble. The sound of later roars gradually grows less, ending off almost in a sigh. The beast's habit of putting its head low makes the sound travel far along the ground.

The roar of one lion calls forth the roars of others. Men lying out in camps tremble with fear; wild animals out feeding are struck with panic and gallop hither and thither, not knowing which way to escape the danger which threatens them. As likely as not some frightened antelope will gallop right into the jaws of a lion, or so near to him that he has but to spring to capture it.

If he has to make a choice of food, he will prefer a zebra, because that animal's flesh is covered with soft fat which the lion loves. Next to the

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zebra he would prefer a dead hippopotamus, which is still fatter. He will not attack a live hippopotamus, for that

monster, though peaceful enough, is much too strong for a lion to pull down. Next in favor will come either a giraffe or an antelope. He likes the flesh of the buffalo.but buffaloes are very fierce fighters, and can actually at times kill a lion.

Should all these fail, then there are the domestic animals of men. We will say nothing about man himself, for the lions which deliberately attack men without being first attacked are rare. Generally lions who attack man are old animals, whose teeth have become too worn to kill

larger prey. When they become maneaters, however, and especially if a young, strong lion learns this habit, they are more to be feared than all the other

animals put together, the tiger alone excepted. Until they have been hunted down and killed, there is no safety for man in the neighborhood in which they live.

"Now for a zebra," says the lion. But the zebra knows its danger. It is

up and feeding at night, with giraffes and gnus in its company. It knows as well as we do that there is no other animal which can hide its great body in such small space as the lion; that no other animal, when it springs, comes with such dreadful and unerring

force. So the zebra never goes near bush or grass or reeds large enough to conceal a lion. Therefore the lion has to conspire

with its friends or The confamily. federates hide in different places, and, springing out one after another, drive the zebra this way and that, until finally it comes near enough to be caught by the last hidden lion. A single bite from the lion, accompanied by a stroke from its great paw, and the sufferings of the zebra are ended, and the lion has its meal.

The lions which have thus combined to catch a zebra no sooner secure their prey than they quarrel over it, and often the rest will be driven away to seek other

food while the strongest remains to enjoy the meal. The lion eats his fill, then goes to a pool for water, drinks, and returns, just as the sun lights up the sky, to sleep

in peace. As he leaves the remains of the zebra or giraffe which he has killed, stealthy figures steal out of the shade. Tackals have come to eat what the lion has left. Generally the lion takes no notice of them, but if he has left much he may return



WAITING FOR DINNER

and drive off the jackals, so that there may remain a meal for himself for next day. The lion does not make a kill every night. Sometimes he has to fast, and the rest does him good. It is in the day time chiefly that men meet the lion. They track him by his "spoor," or stumble \*

# THE LION IN SEARCH OF FOOD AND DRINK



A HUNGRY LION AND LIONESS WATCHING A CARAVAN PASSING ACROSS THE PLAIN



A THIRSTY LION AND LIONESS KEPT AT BAY BY A CROCODILE

The bottom picture is from a painting entitled "Forced Abstinence"; reproduced by permission of Messrs. C. E. Clifford & Co.

across him as he lies at rest, sleeping off the effects of his last meal, and send natives or dogs in to rouse him.

Out he goes very reluctantly. We are not at our best if roused for a crisis in

the middle of the night, and the lion is at worst his when called the up in middle of a bright day after a heavy meal a few hours before. With a snarl and a roar he tries to awav. But he will kill a dog if pressed. Some lions. when

paw he kills a man or maims him for life. Generally, he will not attack man.

How is it that, as all animals drink at night, they do not meet the lion at the pool? We might expect that the lion,

> knowing the animals must drink, would lie in wait at the pools. But the aniwould mals realize the danger there and desert that part of the country.

Young lions are at first very helpless. It is some months before they get teeth strong



A FINE LION RESTING AFTER A MEAL 

The Book of WONDER



# WHERE DOES THE SAND COME FROM? THE STORY OF SAND, SHINGLE, AND SHELL

a 67000 ET us take O CONTINUED FROM 5874 ( bucket and spade on to the seashore and build castles with old rocks mountains. Those grains of sand which the waves dash hither and thither, which the wind fans away, which a trickle of water carries out to sea, are not older, for once upon a time they were merely as old as the hills; they are mountains and hills and rocks themselves.

Sand did not suddenly come into existence as sand. If we examine it under a microscope, we find that every grain of it is a separate piece of mineral matter. It was formed millions and millions of years ago. It may have been part of sandstone, which is so hard that men make grindstones of it to-day. Yet wind and frost and rain broke up the seemingly invincible sandstone into these tiny fragments, and carried it on the wings of the breeze, or on the bosom of rivers, down to the sea.

Again, our sand may have formed part of great rocks made up chiefly of quartz, felspar, and mica. We can guess at the astounding age of sand such as this, for the rocks into which it was formed could not have come into existence except at a depth of from 30,000 to 80,000 feet down in the earth. In the red-hot workshop of the world these sands were formed, and, under enormous pressure fifteen

miles deep in the earth, it was pressed into granite and gneiss.

Nature has no patent drills,

no dynamite with which to blast,

but she has her tools which bring these deep-hidden rocks to light. Her fiery heat thrusts up countries and continents, flings up mountains on the site of valleys, and so the buried rocks come into view, to be exposed to the wearing action of rain and heat and frost and wind. These powerful agents, which destroy one form of rock and grind it to powder,

are capable of making mountains.

Worrying and gnawing, drilling, and chafing, they keep cutting down the soft parts and carrying them away, so that the top and side covering of the granite is removed, and what was once a flat stretch, hidden in the earth, stands out at last as a towering height, overlooking a plain from which the upper layers have all been worn away.

As water finds the lowest level, all that is carried off by it must go with it to the lowest level, and the seashore is therefore the place to which the sand is carried. The sand of the shore is only a thin covering, though it seems a little world to us. It is like a layer of dust on a school desk. We need only to apply a duster or a puff of air. The dust vanishes, leaving the wood of the desk exposed. Sand is merely a layer of debris hiding the

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rocks below. Along the margin the sand which has come from the hills and rocks collects.

There are great quantities of sand in the sea near the shore. Some of this is constantly being carried in by the waves, while other sand is carried out to sea. The sands are constantly changing, except where they are very sheltered. Sometimes the sand may drive too far inland, and buries buildings and fields and villages near the coast. This is not uncommon in some parts of our own country.

## THE WAVES THAT FLING MASONRY ABOUT LIKE PEBBLES

More often, however, it rebels against the masterful sea, and actually masters that giant force. So much sand is brought in by the sea sometimes that it forms itself into hillocks or sand-dunes, and so firmly does it bind itself together that it forms a barrier against the sea which has brought it, and prevents the waves from coming in any farther.

But, as we know to our cost when we bare our feet to paddle, seashores are not always of sand. Too often they are of shingle. Well, the shingle has its history. Many of the stones have been washed in course of time out of the rocks standing by the sea. Still more, perhaps, came to the sea by slow stages, wrenched by ice from far-away hills and valleys.

Slowly, little by little, obeying the unswerving law of gravity, these pebbles were rolled onward to the sea. And there they have been, tossed hither and thither upon the shore. Storm-waves, which can fling about blocks of masonry as if they were corks, treat the pebbles like feathers, and hurl them into the air, so that lighthouse windows, standing high above high-water mark, are smashed by these relics of the mountains and valleys of a land that existed ages and ages before man.

### THE ONCE LIVING WALLS OF THE SHORE

The rocks themselves, that stand boldly up, guardians of the coasts, tell us of the mighty changes that our world has seen. Some of them were formed in the fiery crucible of the earth, in the blazing heat wherein diamonds are born. Some of them are formed of metals and minerals combined. A bowl of starch which is a sticky fluid at this minute forms a sediment which in an hour will

be set hard. Many of our rocks were formed like the starch which solidifies at the bottom of the bowl. But, instead of an hour, it took millions of years to make the change. Some of the rocks were once living animals. Myriads and myriads of tiny shell-fish lived in a sea where the rocks now stand. We find them a thousand feet high in some hills to-day. The white walls of old England, the beautiful gleaming cliffs that all love, were living things once upon a time. They lived and died. They took certain properties from the sea-water to form their "limy" or calcareous shells, and when they died their shells became converted into chalk to make the rocks and cliffs which are so wonderful.

## THE WONDERFUL SHELLS OF WHICH ROCKS ARE MADE

A search in the sand will reveal hosts of these little shells to-day; but though they are of the loveliest shape and design, they are so tiny that we need the help of a microscope to see them. Of such little things are rocks and cliffs composed. Large shells there are, of course, for the searcher. They have all been habitations of various forms of life which people the sea.

There is not a beach in the land which does not yield a feast of delight for those who have eyes to see the wonders and beauties of these little marvels of creation. All the colors of the rainbow are represented in these dwellings of the humble. and man with all his skill cannot imitate them, so perfect are the tiny ones in shading and in form.

Then we think of the tiny snail-like thing that lived in it, and remember that the same properties in the sea which gave this little beauty its life, its shape and form and charm, give the mighty whale his bulk, speed, strength, and endurance. the shark his power and ferocity, the gorgeous fishes of the coral reefs their hues, and the sea itself its lovely meadows of weed, its lazy living sponges, and those marvelous anemones which mark the dividing line between plants and animals.

# THY DID BABY'S EYES CHANGE COLOR?

In order to understand this fully we should have to know a good deal about the structure of the eye, as well as about colors. But it is enough for our purpose here to say that the color of the eye depends upon a structure called the iris 

-a kind of curtain made of delicate muscle-fibres which have the power of contracting and relaxing. In the middle of the curtain is a hole, called the pupil of the eye. When the colored curtain contracts, the pupil enlarges to allow more light to enter, or, when another set of muscle-fibres contract, the pupil narrows to shut out light.

The color of the curtain depends upon the kind and amount of coloring matter in its cells, and the way this color is

arranged.

Now, this coloring matter is liable to change as life goes on, and it does change somewhat from birth, appearing less bright as time goes on, and being dullest in old age. We notice the change most in a baby's eyes because it appears more sudden in them.

# WHY DOES COLD MAKE OUR HANDS BLUE ?

Even in a healthy person we notice that the color does vary a good deal. The same person is sometimes red in the face as well as blue in the hands. So we might extend this question and ask: Why does the same person change color in different circumstances?

The color of the skin at any given moment depends upon the kind and amount of blood circulating in it at that moment. The blood is the great source of the color we notice in people. In the absence of enough blood the face and lips look white or pale, or anæmic, as we say, meaning bloodless. When there is a great rush of bright red blood to the surface, as when a person is taking violent exercise, the skin appears red from the expanding of the smallest arteries; when the skin is exposed to severe cold the arteries contract and contain less red blood, while the veins expand and contain more of the purplish, impure blood. Further, as the veins on the hands and limbs are nearer to the surface than the arteries, they are more easily seen, and the dark color of the blood shows through the skin over them, and gives a general bluish tint when the skin is cold. If the hands be now vigorously rubbed, or exercise be taken to stimulate the circulation, the blueness disappears, because the blood assumes its usual course once more.

# WHY DOES A CAT ARCH ITS BACK ON MEETING A DOG?

It is difficult to be quite sure why animals do certain things, unless we 

know whether they do them in their wild state. If we knew that a wild cat would arch its back on meeting a dog, we might safely presume that it is an instinct on the part of the cat which teaches it to take an attitude which may help it in self-defence. The attitude of the cat with its back arched, and its hair more or less bristling at the same time, might suggest to the dog an object of such ugliness as would terrify it; or one might suppose that the cat, in assuming this attitude. is attempting to get a firm grasp of the earth with its feet, so that, by thus stiffening its muscles, it could scratch its enemy with greater force and defend itself in that way.

But there is another explanation which may be more accurate. When a dog seizes a cat, it does so by the middle of the cat's body, and, by arching its back and bringing the two hind feet as near to the two fore feet as possible, the cat may be trying to protect this part of its body.

# WHY CANNOT ELECTRICITY PASS THROUGH GLASS?

The shortest answer to this question would be to say that glass is a non-conductor of electricity. But what do we mean by a non-conductor? We mean a substance which will not allow a current of electricity to pass along or through it. This can be tested by an instrument called a galvanometer, which, when we pass an electric current through it, shows on a dial whether there is any current passing or not, and, if there is, how strong that current is. Two wires run from the instrument, and if their ends come together the dial shows that the current is passing. If, instead of this, we make the wires touch something else, we find that the current still passes in some cases, but not in others. Thus, if we take a coin and put the two wires in contact with it, the current passes. The coin, being metal, acts as a conductor. All metals are conductors. But if we take a piece of porcelain, or glass, and put the wires in contact with this, the instrument shows that no current is passing. These things, therefore, do not conduct electricity and are called nonconductors.

# WHY DOES A MUTE DEADEN THE SCUND OF A VIOLIN?

Before we can understand this entirely, it is necessary to know what sound is, and also a little about the construction

of a violin. By sound we understand something that we can hear, and this is really the effect produced by the vibrations of some substance or other. These vibrations of the sounding substance enter the air and are carried to the organs of hearing, which carry them to the brain, and so make us conscious of the sound. No substance can make any sound unless it be put into a trembling, or vibrating, condition, so we may say that sound is the motion of vibration, impressed upon our senses.

A musical sound, like that from a violin, is caused by a regular series of exactly similar vibrations, succeeding each other at precisely equal intervals of time. The little implement known as a "mute" is made of wood, ivory, or brass, and when in position grasps the bridge of the violin. By compressing the bridge, the mute makes the vibration of the bridge less free, lessening also the vibration of the strings, so that the sound from them is made softer and altered in quality. The mute interferes with the production of the ordinary full vibrations, and so deadens the sound from the violin.

# WHY SHOULD WE NOT EAT THE SKIN OF A PLUM?

The skin of a plum has nothing in it of much use to us as a food, so that it is not worth eating; and the skins of most fruits consist of chemical substances which we cannot digest, and that may, perhaps, cause us pain. But the best reason why we should not eat the skin of fruit is that it has been exposed to the air, and contains a host of microbes. It is probably right to say that the business of the skin is to protect the fruit from microbes.

# TATHAT MAKES A RIVER WIND?

We should naturally expect that a river would flow straight from its source in the high lands or mountains to the nearest point in the sea, and so it would if it had to flow over a perfectly smooth surface, composed of glass, or of anything else of the same structure throughout. But the water has to flow over the land, and this is by no means smooth all the way, nor is it of the same composition all the way. The river flows the easiest way. When it comes to an obstacle such as a rise in the ground, the water will be turned to one side and flow round the obstacle.

But, even when flowing through flat country, a river winds about, and this is because it washes away the soil from the softest parts of the surface and so makes a track for itself, which is followed by the water coming after. This is the "bed" of the river. Where the river comes to stone and rock, it flows over them until it reaches a softer part at the side, when it makes a track there.

# THY ARE THE RIVERS NEVER STILL?

A river is never still because of the great law of universal gravitation, which is that every particle of matter in the universe attracts every other particle with a force in the direction of a straight line joining the two. Now, as far as our earth is concerned, this means that the particles of the earth, and those of the water of a river, are thus acting towards each other, but the earth is the stronger, so to speak, and draws the water downwards to the lowest point.

That is to say, gravitation is acting in one direction, downwards, and this downward force of gravitation is what we mean by "weight." The particles of a river are always being attracted to the earth in this way, and so are always in motion, finally reaching the lowest level at the sea. The rivers, we may say, are always moving because they are always trying to reach the sea, which lies at the lowest possible level, or the nearest point to the centre of the earth, which water can reach.

# XILL THE LAST MAN GASP FOR AIR?

It has been suggested that the oxygen of the air is being slowly used up, that the quantity of carbon dioxide is increasing, and that in the long run the carbon dioxide, which is comparatively heavy, will fill the valleys and low-lying places, so that men will have to climb out of them. And then, it might be supposed. the sea of carbon dioxide would gradually rise, driving men higher and higher for the oxygen they need, until at last the number of men would get fewer, and the last man would die of suffocation, gasping for air somewhere on the side of a high mountain.

But usually we find that when something in Nature appears to be going all in one direction, or to be coming to an end, there is something else which compensates for it. That is doubtless the  case with the oxygen and carbon dioxide of the air. When the quantity of carbon dioxide tends to rise, the sea absorbs the extra amount, so there is no fear of our being forced up the mountain-sides: and the green vegetable world is always making new oxygen from carbon dioxide. That is part of what is called the "balance of Nature."

# TATHY ARE ROSES RED?

This is a question which cannot be answered in a single sentence, for the redness of roses depends on many things, and not merely on the roses themselves. No rose is red in pure green light or in the dark; and in a pure red light a white rose is red. Plainly, therefore, we must study light as it reaches the rose from the sun.

We find that white light is a mixture including red. If any rose, or anything else that does not shine of itself, is illuminated by a light that does not contain red, that thing will not appear red. Roses do not shine of themselves, and therefore the first reason why roses are red is that there is red light in sunlight. But if there is red light in sunlight, why are some roses white and not all red?

The reason is that roses differ in their way of dealing with the sunlight that falls on them. Red rays, as well as all rays of other colors, fall upon a white rose; but it is not red, for it reflects to our eyes all the light that falls on it. As we have seen, if only red light falls on it it will be red, for it can only reflect that. But there is something in the red rose which causes it to behave differently with sunlight. Instead of reflecting all the rays that fall on it, it absorbs, or keeps to itself, all the rays that make up sunlight except the red ones. These it reflects to our eyes, and so we say it is a

# WHY DO SOME THINGS BEND AND OTHERS

This is a question which sounds as if it should be easy to answer, but really it is most difficult. All the questions about such things as bending and breaking, and stretching and brittleness, and so forth, are of the same kind, and the answers to them depend upon knowledge which we do not as yet possess.

We do not know what makes the parts of any solid thing stick together, and so we cannot possibly hope to explain such 

facts as bending, brittleness, or elasticity. We can learn something by studying such things as sealing-wax, which will readily bend at times, and will break at other times. In this case we find that the temperature of the sealing-wax makes all the difference.

Such facts as these help us a little. The little parts, or molecules, that make them must be held together differently in different cases. In hot sealing-wax they behave as if they held each other with their arms relaxed, but in cold as if their arms were stiff. That is the only kind of idea we can form of this interesting question as yet.

# TS THE BLOOD ALIVE?

As to whether blood is itself alive or not, the answer is both yes and no. Blood consists of a part which is certainly not alive, and of another part which is very much alive indeed. To our eyes, not helped by the microscope, blood is just a fluid, and a fluid cannot be alive. The fluid part of the blood is simply a mixture of a very large number of chemical compounds, food materials, salts, materials for poisoning microbes with, and so on. These are not alive, though our lives depend on them.

But in this fluid there swim unthinkable billions of living cells, so that the blood is certainly alive to that extent. In the blood of a healthy man there are more than five millions of such cells in a quantity about equal to two pins' heads, and the blood of a healthy woman contains nearly five millions in the same space. These cells are of various kinds, red and white. The white cells are, perhaps, almost the most intensely alive of any cells in the body.

# WAS THE EARTH ALWAYS 93,000,000 MILES AWAY FROM THE SUN?

Always and never are very big words, and people who use them often are more bold than they are wise. There was not always a sun, nor was there always an earth. Each had its beginning, and there can be little doubt that they began in much the same way and at much the same time. Of late years we have begun to get clearer notions about it, especially because we have learned so much about the other planets of the solar system, what they are made of, how hot they are, and what is happening upon them.

It seems probable that the earth was

formed at about the same distance from the sun as we find that it is now. It was not exactly the same distance, and, indeed, the distance must be slowly changing now; but it seems more and more likely that not only the earth, but the other planets as well, were formed in space from the great nebula that existed before the solar system, at something like the same distances as they occupy now. And at the same time the sun was being formed by the same laws, at a point which was-and still is-the centre of the whole.

# THAT HAPPENS WHEN WE BREATHE?

The air is always pressing against everything and trying to get everywhere. When we breathe we expand the chest, and the pressure of the air forces some of it down into the lungs. Inside the lungs the air makes certain exchanges with the gases in the blood, so that when it is breathed out it is different in several ways from the air we breathe in. Breathed-out air contains much more carbon dioxide, much less oxygen, and much more water than breathed-in air. It contains various waste particles derived from the inside of the lungs; and it is hotter.

Until quite lately it was generally believed that the exchanges of gases between the air and the blood were just such as might happen from the two sides of, for instance, a thin piece of parchment or blotting-paper. But it has been proved that such an explanation is not enough. The changes that happen when we breathe could not be carried on without the help of the living cells that line the lungs. These cells are very flat and thin, and it used to be thought that they did nothing but allow the gases to pass through them; but now we know that they pick and choose what shall pass and what shall not. This is a very late discovery in the science of breathing.

# THAT MAKES COLORS IN THE FIRE?

Light is made of waves in the ether. Different waves make light of different colors. The waves are made by the movement of the parts of the atoms of the thing that sends forth light. Different atoms are made in a different way, and the "electrons" that make them move in different ways. Therefore, different atoms produce different kinds

of waves in the ether, which means that when they produce light at all, the light is of different colors. We know altogether about ninety different kinds of atoms, and each of them produces a different light. Also the same kinds of atoms may produce different kinds of light at different temperatures.

So now we see that the different colors produced in the fire are due to the various kinds of atoms that are present there at various temperatures hot enough to make them give forth light. Coal contains many elements, and thus a coal fire has many colors. Glowing carbon is red. The yellow flames are due to the atoms of the element sodium. If we see a violet flame it is due to the element potassium; and there is a blue flame produced by the atoms of a gas which is called carbon monoxide.

#### F TREES GROW FROM SEEDS, HOW DID THE FIRST SEEDS GROW?

This is really another version of the old question: Which came first, the hen or the egg? The answer is that the egg came first, and the answer to our present question is that the first oak tree grew from an acorn, but the first acorn was a new thing in the world, not produced by an oak, though doubtless by some-

thing very like an oak.

There are constantly coming into the world of life new seeds from which grow kinds of living things which are more or less new. They vary from those which went before them, and so they are known as variations. The first egg that produced the first hen was a variation, and so was the first seed that produced the first tree. Of course, we do not expect such changes to be violent. We should not expect a fern to produce an acorn one day, or anything but a bird like a fowl to produce the egg from which a fowl grew. Still, these new things do keep on coming into the world, and in many cases the new kinds are superior to the old.

#### WHERE DOES ALL THE ENERGY GO AFTER A FOOTBALL MATCH?

This question has been wisely asked by someone who knows that all kinds of energy or power must always be accounted for, as they can never be lost. First, we must observe where the energy is after we have kicked the ball. It is in the motion of the ball, and, as it cannot be destroyed, we can readily under-

stand the first law of motion, which says that the ball will go on moving in the same straight line for ever at the same

speed.

Therefore, we must find what stops the ball, and then we shall be able to trace the energy which the kick first put into it. The ball is stopped by the resistance of the air and by the friction as it rolls along the ground. This means that its energy is now to be traced in the movement and heating of the little particles of air which it disturbs, and in the movement and heating of the ground. Of course, the ground must be heated a little, just as our hand is when we rub it on our clothes. In this way the ball gradually spends its energy, and ceases to move. If we trace the energy in the other direction, we soon find that we are led back to the sun, which is the source of all energy.

# CAN COAL-GAS ESCAPE FROM GRAVITY?

Nothing is more certain than that the law of gravity is always acting. It is never disobeyed or destroyed or suspended, because, though that may happen to the laws of men, it cannot happen to the laws of Nature. Therefore, if anything appears to be defying the law of gravity, we must be sure that really it is under the influence of some other force or forces, and that what happens is the result of those forces and the law of gravity as well.

This is the case with a floating balloon or a floating cork, with an airship or a sea-ship, with a mountain and the clouds round its summit. It applies to coalgas also, and if coal-gas or any other gas rises, we must understand that gravity is acting on it all the time, and that without gravity it would behave very

differently.

A most remarkable discovery has lately been made, that it is possible for the atoms of any gas to jostle each other, and that in this jostling process a certain number of them may move so fast that the gravity of the earth is not sufficient to hold them. When this happens these atoms fly away into space, though even as they do so, they are as much under the influence of gravity, and as much affected by it, as if they were falling back to earth. This especially applies to small globes, and explains why the moon has no atmosphere:

# WHAT IS THE BLOOM ON A GRAPE?

The bloom on a grape is very beautiful and delicate, and we value it because it tells us that the grape has been cared for since it was plucked; or, if we see it on grapes that are growing, we value it there because we think of it as the right thing in the right place. Like the bloom on a cucumber, the bloom on the grape is really no part of the grape at all, nor can we even say that it is made by the grape. It is really a mass of microbes that have gathered upon the skin of the grape.

# TS NIGHT AIR DANGEROUS?

Well, to begin with, all air at night is night air, so if it is dangerous we have to face it and breathe it through half our lives. But really this is a superstition, and quite untrue. The air at night is purer than by day, for it contains less dirt and dust and a smaller amount of the carbon dioxide which fires and furnaces contribute to the air so largely by day.

The fact is that, in many parts of the world, including those from which we get our civilisation and many of our superstitions, it is very dangerous indeed to go out in the night air. People who thus expose themselves are likely to suffer from a very serious illness called malaria—a word which really means bad air. And, naturally enough, it was thought that the night and the darkness changed the air in some way so as to make it

poisonous.

But now we know that malaria is due to a germ which is pushed into our bodies by a certain kind of mosquito when it bites us. If the mosquito with this germ does not bite us, we do not get malaria. Now, the mosquito's rule is to feed—which means to bite—at night only, and so it is the malarial mosquito that is the danger of night air.

# WHAT IS THE MOST VALUABLE THING IN THE WORLD?

The value of anything is the power that it has for the service and making of life. Thus, a thing may be very cheap and very valuable, such as air or light. It is not a question of cost price or expense at all. So, if we use the word valuable in the proper sense, we must answer that by far the most valuable thing in the world is love. Of

course, there could not be life at all without such things as water and air but, this being granted, the thing which makes for more life and higher life than

anything else is love.

This is equally true whether we look at it from an outside point of view or from our point of view as human beings. Even from the outside point of view love is most valuable, because all the highest forms of life depend upon it, though lower forms of life, like vegetable life and that of the lowest animals, do But from our point of view as human beings there is nothing to approach love. Without the love of the mother for her child human beings could not exist at all, so that the highest kind of life that exists entirely depends upon

As for ourselves as individuals, we learn sooner or later that for each of us love is the most valuable thing in the world. It is the affection and friendship and companionship of those we love that give their value to life's other prizes, and that solace us in life's sorrows. And, unlike other things, the more we give the more we have, for it is quite true that the more we love the more we are able to love.

# WHY DOES THE SAME FLOWER HAVE MANY DIFFERENT COLORS?

All the color materials of living things are definite chemical compounds, just like the colors in a box of paints. They are made where they are desired by the life of the corresponding cells of the plant or animal. Thus we must look upon the cells as tiny but wonderful chemists, able to make out of the plant-sap and the carbon dioxide of the air the various chemical compounds which cause them to reflect the different waves of light that give the leaves or the flowers their color.

That is all quite plain so far; but when we come to ask how it is that the cells in the petals make one kind of color, and those in other parts of the flower entirely different colors, we can only say that

these are the powers of life.

We are on the eve of going a little farther toward some dim understanding of the reason, for we are beginning to learn the details of the chemical processes that make the colors. It is also becoming possible to show how the colors of plants vary between parents and offspring, and what are the causes in the seeds which decide what the colors of the plants that grow from them shall be. The foundations of our knowledge of this subject were laid nearly half a century ago by an Austrian monk named Mendel, who studied peas in his garden; but his work remained unknown until a short time ago.

# WHY DOES NOT THE BUNKER HILL MONUMENT FALL?

There is not a man of science in the world who can explain how it is that the towering column in Boston does not fall. No man, indeed, can explain why you can lift the whole length of a poker by merely grasping and raising the handle of it.

You are reading this, no doubt in a room somewhere, and nobody can tell you why that room stands. Men can measure the depth of the sea and the distance of the sun; they can calculate the weight of the earth itself, and can tell what will happen in the sky in a hundred years; but no man can explain why the roof of your house does not fall upon your head. It is not enough to say that the wood and iron are fastened together, that the bricks are held fast by mortar, and that great beams hold up the roof, for every tiny atom of matter that makes up bricks and mortar and wood and iron is flying about like snowflakes on a windy day. Nothing is what we call "solid." Every bit of matter flies about at a rate that we can hardly think of—specks so small that each single speck has as much space to move inin proportion to its size—as the earth itself; and they fly about, as we know, in a world that is itself for ever flying.

So that the very room we sit in is not still—every part of it is flying about; and yet it keeps together and holds up. There are buildings that have stood for twenty and thirty centuries or more. Men do not know why a building stands -they do not know, that is to say, the extraordinary power which keeps these little flying specks of matter in their place. There is a name that stands for this mystery, but that is all we know. It is what we call the miracle of cohesion. If you were to examine the monument with X-rays, you would find that its stones are composed of tiny atoms separated from each other by certain distances. The X-rays would pour right 

through the column, and illuminate objects on the other side.

How is it, then, that the column stands? Science can only answer that stone added to stone, and brick piled upon brick, will stand so long as the base is firmly founded in the ground, and so long as the weight at the top does not overbalance. All the vibration of traffic does not topple the Bunker Hill Monument over, and experience assures us that it will stand till the stone crumbles. But we cannot tell why.

Cohesion is one of Nature's secrets. How is it that the atoms which compose a walking-stick hold together? How is it that the atoms which compose a pin hold together? Much more may we ask: How is it that the atoms composing the Bunker Hill Monument hold together? They are little charges of electricity, tiny invisible atoms, and they stick together and build up by their millions what we call solids. Millions and millions of electrical charges form the fraction of a fragment of the monument at Bunker Hill. How do they hold together? When we have said Cohesion, do we understand the miracle any better?

# ARE THE BEST SPEAKERS THE BEST THINKERS?

Certainly not, though we are too prone to suppose so. One man really thinks his best, whatever that is, when he is aroused by facing an audience; another can only think his best when he is absolutely alone with a pen in his hand. Good writers are often not good speakers. One of the greatest poets that England has produced since Wordsworth was the dullest and most uninteresting talker that could be imagined, and his friends say that they cannot remember a single noteworthy thing that he ever said. Yet, when he had a pen in his hand, he wrote some things which will never be forgotten. Oliver Goldsmith was another such case, for it was said of him that "he wrote like an angel and talked like poor Poll." On the other hand, many wonderful and effective speakers have been poor writers, and when their speeches are taken down and printed, we find, on reading them in cold blood, that there is nothing in them. Indeed, the power to speak well really argues nothing for or against a man's thinking power; and it is a good thing, on the whole, that 

nowadays the written word is so much more important.

# DO WE CHANGE OUR BODIES EVERY SEVEN YEARS?

There is no foundation at all for the notion that we change our bodies "every seven years." Almost every part of our bodies, except the outside of the teeth and part of the bones, is changing slowly all the time, for the material of it is being worn and burned away and replaced by new material. That is one of the reasons why we have to eat. In a very true sense, we "die daily," and build ourselves up again from our food. If it were possible to mark all the atoms in our food and all the atoms that make our bodies, we should certainly find that nearly all the material of the body changed completely in far less than seven years. But seven was an old magic number, and in most superstitions where numbers are concerned, seven comes in.

It is often asked why, if we change our bodies so often, marks in the skin remain. The reason is that the form of the body remains, though the material of it comes and goes. The stuff that makes our brain-cells flows into them and out of them, but we remember things that happened long ago.

On the other hand, there are certain parts of the body which are simply made somewhere else, and pushed out or pushed up to serve for a little and then disappear. Hairs are like this; people who dye the hair soon find that they must renew the dye every now and then, for, as the hair grows, the real color begins to show at the roots. The same is true of the outer skin, which is made and pushed up by the inner skin. Marks and stains on the outer skin do not stay, for the cells are soon washed away, and are replaced by new ones from beneath. But marks in the "true skin" remain, and never disappear.

# WHY DOES A CANNON-BALL BOUNCE OUT OF THE SEA BEFORE IT SINKS?

What happens to the cannon-ball when it bounces is what happens when we make "ducks and drakes" with flat stones as we walk along the seashore. The key to it is the key to all cases where anything bounces. The moving object has force in it, for motion is a kind of force. When it strikes against anything, like a ball thrown against a

wall, part or all of its force is changed into something else.

What will now happen depends entirely on the nature of the moving object. If it is made of sand or snow, gathered into a loose ball by our hands, the force of its motion is changed into a force that scatters the parts of the ball asunder, as we notice when we throw a snowball at anything.

The reason is that a ball of snow or sand has no elasticity. But, an indiarubber ball or a cannon-ball has elasticity, which means that when it is knocked out of shape it tends to return to that shape, unlike the snowball, and this return makes it rebound from the surface it has struck. The cannon-ball cannot rebound forever from the water, although it remains elastic, for neither the water nor the ball is perfectly elastic, and soon gravitation has its way.

#### WHAT IS MEANT BY GRAFTING?

Grafting is the process by which two or more varieties of fruit can be made to grow on one tree. The size of the stock usually determines the method to be followed. A common form is that of cleft grafting. For this a small branch little more than a twig-about half the size of the little finger, is cut from the bush or tree which we desire to graft on another tree. This must be done in the early spring, and the grafts should be placed in a cellar or other cool place for a few days. The little branches are cut into lengths of about nine inches, and each graft should contain three buds of the last year's growth. The end to be inserted in the wood is cut in the shape of a wedge. When the time for grafting comes, the branch upon which the graft is to be made is cut back, a slit is made and held open by a small wedge. Then a graft is placed at each end of the slit, and pushed in tight. The wedge is removed; grafting wax is spread thickly over the wound, and for added protection during the time of healing a white cloth is wound over and around the branch. Two grafts are used because the wound in the branch heals more quickly if both ends are closed, and the chance of obtaining a successful growth is doubled. Luther Burbank makes his grafts on very small branches. In placing the grafts, care must be taken to see that the cambiums of both stock and grafts come

together, otherwise the graft will not grow. The graft is technically known as the "cion" or "scion." The cambium is the layer of growing tissue which lies within the bark, the "soft living part" spoken of on page 919.

By the use of grafting, much time is gained in fruit growing, and in the growing of ornamental and flowering shrubs and plants. Fine varieties of apples may be grafted on the wild crab apple, or fine varieties of roses may be grafted on wild rose stocks, and the time needed to grow strong roots for the young plant is saved.

# VHAT IS THE MEANING OF ST. VALENTINE'S DAY?

The fourteenth of February is called St. Valentine's Day, as the name day or feast day of eight different Christian martyrs named Valentine; that is, in the medieval church, services were held on that day in memory of their martyrdom. The custom of sending valentines or gifts has nothing to do with the martyrs, however. It happened that a springtime festival which was kept by the Romans fell on the same day. The making of gifts on that day has come down from this old festival; but the origin of the custom was generally forgotten, and in time the gifts were called valentines from the name given to the day. This is a good example of the way customs survive, sometimes for centuries among people who do not remember how they arose.

## WHY DOES EASTER NOT ALWAYS FALL ON THE SAME DATE?

The feast of Easter is not always held on the same date because the date is reckoned by lunar months. The feast is kept by all the Christians of the Western world on the first Sunday after the full moon which follows the vernal equinox, that is to say, the twenty-first of March. As you know, the lunar months are shorter than the calendar months, as the months of the year are called. Therefore the full moon does not always fall at the same time in the calendar month. The moon may be full the day before the twenty-first of March, and as it will be twenty-seven days before another full moon comes round, Easter will be late that year. Again, a full moon may fall on the twenty-second of March, and as Easter must be held on the following Sunday, that year it will be early.

THE NEXT QUESTIONS ARE ON PAGE 5080. 

# The Book of

# THE BURIAL OF MOSES

"And he buried him in a valley in the land of Moab, over against Beth-Peor; but no man knoweth of his sepulchre unto this day."-Deut. 34:6.

When Moses was leading the Israelites through the wilderness they demanded water: he struck the rock and produced water, but acted so proudly and failed so completely to glorify God that he was not allowed to enter the Promised Land, but on the borders of Canaan he climbed up Mount Nebo, which overlooked the fertile valleys and the rolling plains of the country his people were soon to enter. There God showed him all the wonders of the land and there, alone with God upon the mountain top, the great law-giver died. Israel mourned for him for thirty days.

CONTINUED FROM 5823

RY Nebo's lonely moun-

On this side Iordan's

wave, In a vale in the land of Moab, There lies a lonely grave.

And no man knows that sepulchre, And no man saw it e'er,

For the angels of God upturned the sod, And laid the dead man there.

That was the grandest funeral That ever passed on earth; But no man heard the trampling, Or saw the train go forth: Noiselessly as the daylight Comes back when night is done,

And the crimson streak on ocean's cheek Grows into the great sun,

Noiselessly as the spring-time Her crown of verdure weaves, And all the trees on all the hills, Open their thousand leaves; So without sound of music, Or voice of them that wept, Silently down from the mountain's crown The great procession swept.

Perchance the bald old eagle, On gray Beth-Peor's height, Out of his lonely eyrie, Looked on the wondrous sight; Perchance the lion stalking, Still shuns that hallowed spot, For beast and bird have seen and heard, That which man knoweth not.

But when the warrior dieth, His comrades in the war, With arms reversed and muffled drum, Follow his funeral car; They show the banners taken, They tell his battles won, And after him lead his masterless steed, While peals the minute-gun.

Amid the noblest of the land, We lay the sage to

rest, And give the bard an honored place With costly marble drest, In the great minster transept

Where lights like glories fall, And the organ rings, and the sweet choir sings,

Along the emblazoned wall.

This was the truest warrior That ever buckled sword, This, the most gifted poet That ever breathed a word: And never earth's philosopher Traced with his golden pen On the deathless page, truths half so sage
As he wrote down for men.

And had he not high honor,-The hillside for a pall,
To lie in state, while angels wait
With stars for tapers tall, the dark rock-pines like tossing plumes Over his bier to wave, And God's own hand, in that lonely land, To lay him in the grave?

In that strange grave without a name, Whence his uncoffined clay Shall break, again, O wondrous thought!
Before the judgment-day,
And stand with glory wrapt around

On hills he never trod, And speak of the strife that won our life With the Incarnate Son of God.

O lonely grave in Moab's land! O dark Beth-Peor's hill! Speak to these curious hearts of ours, And teach them to be still. God hath His mysteries of grace,

Ways that we cannot tell; He hides them deep, like the sacred sleep Of him He loved so well.

#### 

# THE HARP THAT ONCE THROUGH TARA'S HALLS

Tara was for many centuries a royal residence of the kings of Ireland and the scene of great meetings of the people. In the time of St. Patrick it was also the chief seat of the Druids. This well-known song was written by Thomas Moore.

THE harp that once through Tara's halls The soul of music shed,

Now hangs as mute on Tara's walls,

As if that soul were fled.
So sleeps the pride of former days,
So glory's thrill is o'er,
And hearts, that once beat high for praise,

Now feel that pulse no more.

No more to chiefs and ladies bright The harp of Tara swells;

The chord alone, that breaks at night, Its tale of ruin tells.

Thus Freedom now so seldom wakes,

The only throb she gives, Is when some heart indignant breaks To show that still she lives.

#### THE BELLS OF SHANDON

Francis Sylvester Mahony, the author of "The Bells of Shandon," was born in Cork, Ireland, in the year 1895. He became a priest, and afterwards gave up his calling to take his place on the staff of a magazine. He was a brilliant, witty and sarcastic writer, and his works are collected in a volume entitled "Reliques of Father Prout." When he became older he retired into a monastery.

WITH deep affection and recollection I often think of those Shandon bells, Whose songs so wild would, in the days of

childhood, Fling round my cradle their magic spells.

On this I ponder where'er I wander, And thus grow fonder, sweet Cork of

With thy bells of Shandon, That sound so grand on The pleasant waters of the river Lee.

I've heard bells chiming full many a clime

Tolling sublime in cathedral shrine,

While at a glib rate brass tongues would vibrate-

But all their music spoke nought like thine;

For memory dwelling on each proud swell-

Of the belfry knelling its bold notes free Made the bells of Shandon Sound far more grand on The pleasant waters of the river Lee.

I've heard bells tolling old "Adrian's Mole"

Their thunder rolling from the Vatican, And cymbals glorious swinging uproarious In the gorgeous turrets of Notre Dame:

But thy sounds were sweeter than the dome of Peter

Flings o'er the Tiber, pealing solemnly;-Oh! the bells of Shandon Sound far more grand on The pleasant waters of the river Lee.

There's a bell in Moscow, while on tower and kiosk O!

In Saint Sophia the Turkman gets, And loud in air calls men to prayer

From the tapering summits of tall min-

Such empty phantom I freely grant them;

But there is an anthem more dear to me,-Tis the bells of Shandon, That sound so grand on The pleasant waters of the river Lee.

#### SLEEP, BABY, SLEEP

This beautiful little poem, which is translated from the German, is a lullaby and has been set to very suitable music.

SLEEP, baby, sleep! Thy father guards his sheep; Thy mother shakes the dreamland tree, Down comes a little dream on thee. Sleep, baby, sleep!

Sleep, baby, sleep! The large stars are the sheep; The little stars are lambs, I guess; The gentle moon the shepherdess. Sleep, baby, sleep!

Sleep, baby, sleep! Our Saviour loves His sheep; He is the Lamb of God on high, Who for our sakes came down to die. Sleep, baby, sleep!

# WHEN I AWAKE I AM STILL WITH

Harriet Beecher Stowe, the author of this poem, is most widely known for her popular book "Uncle Tom's Cabin." STILL, still with Thee, when purple morning

breaketh, When the bird waketh and the shadows

Fairer than morning, lovelier than the day-

Dawns the sweet consciousness,—I am with Thee!

Alone with Thee, amid the mystic shadows. The solemn hush of nature newly born; Alone with Thee in breathless adoration, In the calm dew and freshness of the

When sinks the soul, subdued by toil, to

Its closing eye looks up to Thee in prayer; Sweet the repose beneath Thy wings o'ershading,

But sweeter still, to wake and find Thee there.

So shall it be at last, in that bright morn-

When the soul waketh, and life's shadows flee;

Oh, in that hour, fairer than daylight dawn-

ing, Shall rise the glorious thought,—I am with Thee!

#### MAIDENHOOD

In this poem by Henry Wadsworth Longfellow we have a charming picture of a young girl on the threshold of womanhood.

MAIDEN! with the meek, brown eyes, In whose orbs a shadow lies Like the dusk in evening skies!

Thou whose locks outshine the sun, Golden tresses, wreathed in one, As the braided streamlets run!

Standing, with reluctant feet, Where the brook and river meet, Womanhood and childhood fleet!

Gazing, with a timid glance, On the brooklet's swift advance, On the river's broad expanse!

Deep and still, that gliding stream Beautiful to thee must seem, As the river of a dream.

Then why pause with indecision, When bright angels in thy vision Beckon thee to fields Elysian?

Seest thou shadows sailing by, As the dove, with startled eye, Sees the falcon's shadow fly?

Hearest thou voices on the shore, That our ears perceive no more, Deadened by the cataract's roar?

O, thou child of many prayers! Life hath quicksands,—Life hath snares Care and age come unawares!

Like the swell of some sweet tune, Morning rises into noon, May glides onward into June.

Childhood is the bough where slumbered Birds and blossoms many-numbered;—Age, that bough with snows encumbered.

Gather, then, each flower that grows, When the young heart overflows, To embalm that tent of snows.

Bear a lily in thy hand; Gates of brass cannot withstand One touch of that magic wand.

Bear through sorrow, wrong, and ruth, In thy heart the dew of youth, On thy lips the smile of truth.

O, that dew, like balm, shall steal Into wounds that cannot heal, Even as sleep our eyes doth seal;

And that smile, like sunshine, dart Into many a sunless heart, For a smile of God thou art.

#### NIGHT

Many poets have made "Night" the theme of their verse. In this poem Percy Bysshe Shelley, the author, desires Night's powers of enchantment more than her attribute of rest.

SWIFTLY walk over the Western wave, Spirit of Night! Out of the misty Eastern cave, Where, all the long and lone daylight, Thou wovest dreams of joy and fear, Which make thee terrible and dear;

Swift be thy flight!
Wrap thy form in a mantle gray,
Star inwrought!
Blind with thine hair the eyes of Day!
Kiss him until he be wearied out;
Then wander o'er city and sea and land,
Touching all with thine opiate wand!
Come, long sought!

When I arose and saw the dawn,
I sighed for thee;
When light rode high, and dew was gone,
And noon lay heavy on flower and tree;
And the weary Day turned to his rest,
Lingering like an unloved guest
I sighed for thee.

Thy brother Death came, and cried, "Would'st thou me?"
Thy sweet child, Sleep, the filmy-eyed, Murmur'd like a noon-tide bee— "Shall I nestle by thy side?
Wouldst thou me?" And I replied— No! not thee.

Death will come when thou art dead, Soon, too soon!
Sleep will come when thou art fled;
Of neither would I ask the boon I ask of thee, beloved Night!
Swift be thine approaching flight!
Come soon, soon!

THE autumn is a gipsy, when the frost is in the air;
A joyous, tattered wanderer, with sumac in

her hair.

A. Anundsen.

#### THE ROSE

This pretty little poem was written by Edmund Waller, a poet and genial courtier of the seventeenth century and a great favorite in the Court of King Charles the Second.

GO, lovely rose!
Tell her what wastes her time and me,
That now she knows,
When I resemble her to thee,
How sweet and fair she seems to be,

Tell her that's young
And shuns to have her graces spied,
That hadst thou sprung
In deserts, where no men abide,
Thou must have uncommended died.

Small is the worth
Of beauty from the light retired;
Bid her come forth,
Suffer herself to be desired,
And not blush so to be admired.

Then die! that she
The common fate of all things rare
May read in thee:
How small a part of time they share
That are so wondrous sweet and fair!

#### ♦THE BOOK OF POETRY

#### A CRADLE SONG

Isaac Watts, the author of this cradle song, was a famous hymn-writer and theologian who lived from 1674 to 1748.

HUSH! my dear, lie still and slumber: Holy angels guard thy bed! Heavenly blessings without number Gently falling on thy head.

Sleep, my babe; thy food and raiment, House and home, thy friends provide, All without thy care or payment,
All thy wants are well supplied.

How much better thou art attended Than the Son of God could be, When from Heaven he descended, And became a child like thee!

Soft and easy is thy cradle: Coarse and hard thy Saviour lay, When his birthplace was a stable, And his softest bed was hay.

See the kindly shepherds round him, Telling wonders from the sky! Where they sought him, there they found With his Virgin-mother by.

See the lovely babe a-dressing! Lovely infant, how he smiled! When he wept, the mother's blessing Soothed and hushed the holy child.

Lo, he slumbers in his manger, Where the horned oxen fed; Peace, my darling! here's no danger, Here's no ox a-near thy bed!

May'st thou live to know and fear him,
Trust and love him all thy days: Then go dwell for ever near him; See his face, and sing his praise.

I could give thee thousand kisses, Hoping what I most desire: Not a mother's fondest wishes Can to greater joys aspire.

#### MY KATE

Elizabeth Barrett Browning, the author, had original genius, a fervent heart, and great power of musical expression. SHE was not as pretty as women I know; And yet all your best, made of sun-shine and snow,

Drop to shade, melt to nought, in the long trodden ways,

While she's still remembered on warm and cold days-

My Kate.

Her air had a meaning, her movements a

You turned from the fairest to gaze on her face:

And, when you had once seen her forehead and mouth,

You saw as distinctly her soul and her truth-My Kate.

Such a blue inner light from her eyelids outbroke,

You looked at her silence, and fancied she spoke:

When she did, so peculiar yet soft was the

Though the loudest spoke also you heard her alone—

My Kate.

I doubt if she said to you much that could

As a thought or suggestion: she did not attract

In the sense of the brilliant or wise: I infer 'Twas her thinking of others made you think of her-

My Kate.

She never found fault with you, never implied

Your wrong by her right; and yet men at her side

Grew nobler, girls purer, as through the whole

The children were gladder that pulled at her gown-

My Kate.

None knelt at her feet confessed lovers in thrall:

They knelt more to God than they usedthat was all.

If you praised her as charming, some asked what you meant;

But the charm of her presence was felt when she went-

My Kate.

The weak and the gentle, the ribald and rude,

She took as she found them, and did them all good;

It always was so with her-see what you have!

She has made the grass greener over her with her grave-

My Kate.

My dear one! when thou wast alive with the rest,

I held thee the sweetest, and loved thee the best;

And now thou art dead, shall I not take thy

As thy smiles used to do for thyself, my sweet heart-

My Kate.

#### LOVE IN TEARS

Coventry Patmore, an English poet of the Victorian age, dwells much in his poems on the power of the spirit of love. **TOVE**, won or lost, is countless gain;

And let us own, the sharpest smart Which human patience may endure Pays light for that which leaves the heart More generous, dignified, and pure. 

# O DEAR, WHAT CAN THE MATTER BE?



O DEAR, what can the matter be? O dear, what can the matter be? O dear, what can the matter be? Johnnie's so long at the fair.

He promised to buy me a bunch of blue ribbon,

He promised to buy me a bunch of blue ribbon.

He promised to buy me a bunch of blue ribbon,

To tie up my bonnie brown hair.

O dear, what can the matter be? O dear, what can the matter be? O dear, what can the matter be?

Johnnie's so long at the fair.

He promised to bring me a basket of posies,

A garland of lilies, a garland of roses,

A little straw hat, to set off the blue ribbons

That tie up my bonnie brown hair.

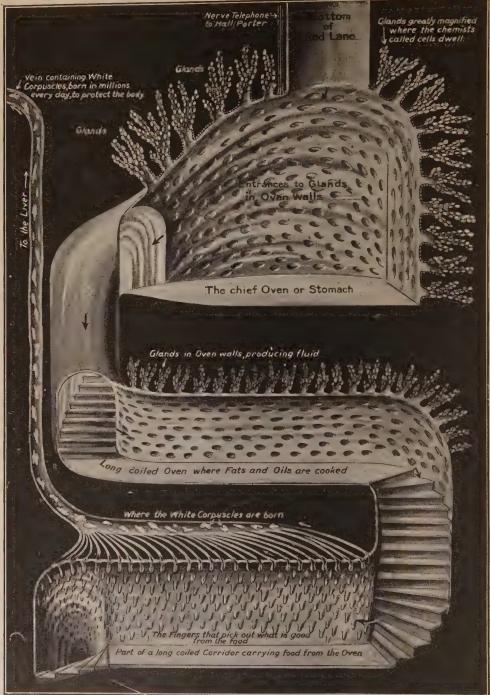


IF bees stay at home, Rain will soon come.

If they fly away, Fine will be the day.

TO BE CONTINUED ON PAGE 5981.

# THE GREAT OVENS OF JACK'S KITCHEN



When the porter has prepared the food, it is passed down the red lane to the ovens. The first, the stomach, is lined with glands, in which dwell millions of chemists, or cells, who help to cook and digest the food before it is passed on to the long-coiled oven known as the upper part of the bowel. Here cooking of the oils and fats prepares the food for the long, coiled corridors of the bowels where millions of tiny "fingers" reach out, each containing a loop of a blood-vessel, and covered with cells, in which live chemists who pass the useful part of the food into the blood. Some of this is changed into white corpuscles, which protect the body.

# The Book of OUR OWN LIFE



Jack's hall porter, who examines the fuel after it is admitted, and prepares it, with the aid of the choppers and crushers, for the ovens at the end of the red lane, in which the food is cooked.

# THE GREAT CORRIDOR

### DOWN THE RED LANE TO THE KITCHEN

E know that as CONTINUED FROM 5624 Jack's house 🕬 is always burning and has several large furnaces always going day and night, he requires a large supply of fuel to make good the loss. We know also that every inch of room in his house is precious, and he can store up only very little fuel, as a rule, so that a fresh supply is wanted very oftenthree or four times a day, indeed, and when he is very young he needs it more often than that. We know also that Jack's house is raised on stilts, or legs, and provided with arms, so that it can walk about and

Though Jack's house is so magnificent, it has only a front door for the admission of everything it needs, except air. There is, of course, the great ventilating shaft, but that does not count for the use of fuel. It is true that, in desperate circumstances, such fuel as oil can be rubbed through the outer wall into Jack's house, but the rule is that all Jack's fuel is received by the front door, and examined by the hall porter.

TO CAN TO CAN THE

help itself.

The responsibility of deciding

what shall be admitted to Jack's house is, of course, enormous. There are hosts of things in the world of which one drop or one grain would be quite sufficient to

destroy Jack's house beyond repair. As a rule, the hall porter, and the front doors themselves, which are covered with tiny sentinels called nerve ends, are very clever in recognizing such dangerous things, not to mention pieces of stones, or splinters, and so on, which would be likely to jam in Jack's great central corridor; and they have a short and effective way with anything they don't like, for the walls of Jack's hall come together, a sharp blast of air rushes through it, the hall porter lends a hand, the doors open smoothly outwards—and Jack spits out the nasty stuff.

There is no doubt that Jack throws a great deal of work upon his hall porter, and that occasionally that invaluable servant shows signs of overwork by looking pale, but, as a rule, he is spruce and ruddy, and the better he does his master's work the more he himself thrives. For,

of course, he has his temptations, and too often he yields to them, and admits into Jack's house what has no business to enter there.

His rule is to test each piece of proposed fuel by means of what we call taste, and if he likes the taste of anything after he has it, he gives it a coating of smooth material which helps it onwards. Generally speaking, the rule is that the things the hall porter likes to taste are good for Tack, and the things he dislikes to taste, and will not admit, are bad for Jack, but there are exceptions to this rule.

# THE HALL PORTER'S ASSISTANTS

The fuel the hall porter admits is seldom quite ready for use, and so the hall is really a department of Jack's kitchen. The ordinary name for the fuel is food, and all food requires to be cooked. Some people will think that a mistake, for we eat uncooked food. But all food, whether we eat it cooked or whether we eat it raw, requires to be cooked in Jack's kitchen; and this business of cooking is, in some ways, the great concern of Jack's house, just as it is in most houses.

In the hall, for instance, there stand no fewer than twenty assistant cooks when Jack is very young, and as many as thirty-two when he is grown up, who devote themselves entirely to chopping up Jack's vegetables, and so on, cutting, crushing, and mixing, before the food is sent along the celebrated "red lane" to Jack's kitchen, which is really the huge living oven where it is cooked. These assistants in the hall are very valuable, and if they fall ill and have to go, Jack cannot get any others that can do his work nearly so well.

# THE CARE OF THE HALL

The best way to take care of these precious helpers is to give them enough work of the right kind to do; if that is done from the first they will very seldom go wrong in any way. That is also the best way to take care of all servants and masters.

And here it may be freely admitted, in the friendliest way, that if Jack has a fault, it is that he is a trifle careless about his hall. The hall porter does his best, and is quite fussy about litter of any kind, about the smallest trifle of fuel or rubbish that may have got stuck among the

choppers; but since Jack changed his habits and began to use prepared and partly cooked fuel, instead of the raw stuff of long ago, it cannot be denied that his hall is seldom as clean as the hall of such a mansion should be. We must remember that this hall is an oven, too, and that the food is partly cooked inside it by the saliva produced in laboratories called the salivary glands.

Now, we cannot have chopping and cooking done in a place without mess and litter and a certain amount of soiling; and the hall porter is not equal to doing any very hard scrubbing. Nowadays that must be done for him, if the hall is to be kept nice, and if the litter and mess in it are not to get further into Jack's house and clog the wheels generally. Jack must brush his teeth, in a word; and, above all, he must do so, and have his hall in perfect sweetness and tidiness, before he locks up for the night and goes to rest.

# THE ROOM WITH THE RED WALLS

Let us make ourselves very small and follow the prepared fuel down Jack's "red lane" with Jack's first floor all round us, if we could see it-and down into his stomach, on the kitchen-floor, where most of the work of preparing the fuel is done. This is a most extraordinary room, with light red walls, and no breathing space at all. It is practically a living oven, which grows large or small according to its contents, but always so as to bring the walls close together, an oven lined with chemists, who pour from its walls a variety of wonderful liquids which cook the contents; and as they do so the walls of the oven are continually moving backwards and forwards, turning everything over and over, letting nothing get burned or too brown.

But there are three things clearly to be remembered. If the chopping, and the moistening, and the preliminary cooking have not been properly attended to in the hall, and if, on the contrary, Jack has simply "bolted his food," he would have done much better if he had bolted his door. Sometimes the oven will simply send everything back, and, as a general rule, this, unpleasant though it be, is much the best thing it can do in the circumstances. Short of that, the oven will get out of order, and look, if 

we could see inside it, rather like the hall porter when he has been enjoying himself instead of attending strictly to his master's business and keeping his

premises clean.

The second point is that this oven is not made for cooking any kind of fat or oil, though it will always try. It will mix the oil—all fats melt and become oils in Jack's house, owing to the cosy warmth he keeps it at—and roll it backwards and forwards, and the chemists in the walls will pour all sorts of things upon it, but no oil is cooked in Tack's chief oven.

THE WONDERFUL OVEN THAT PREPARES JACK'S FUEL

The third point is that, just as this oven is not a mill, and cannot do the work of the mill in Jack's hall, so also it is not a sieve or a filter. Its business is cooking, and nothing else. The things put into it may be sent back, if they are highly unsuitable, or sent forward when they are ready; but we are wrong to suppose that they soak through the walls of the oven. Practically no food ever enters the blood in this fashion. For this wonderful oven is not capable of cooking the food to such an extent that it is fit to enter the blood.

Many other things have to be done to it before it is ready for that. stomach carries out the second stage in the cooking process, the first having been begun in the mouth while the crushers of the mill were doing their The third and later stages are carried out in the bowel, the long, coiled corridor which leads onward from the chief

oven, or stomach.

If the stomach becomes quite worn out, or ill or injured so that it cannot do its work it can be dispensed with, but it has very great uses. It is the largest of Jack's ovens, and is very convenient by reason of its great size, for it enables him to take in fairly large supplies of fuel at a time, and then to do something else between whiles. It provides a convenient oven in which the starches in the food are partly cooked, or fermented, by the saliva with which the food was mixed in the mouth. After the food has been in the stomach from about twenty minutes to half an hour, this process stops, and the wonderful walls of this most wonderful oven, which have all the time been stirring the food, 

pour forth a fluid, usually called the 'gastric juice," which sets to work to cook, or ferment, the most important foods of all, which are called the proteins.

THE CHEMISTS IN THE WALLS

Different portions of the gastric juice come from different parts of the stomach. This oven is wonderfully lined, from end to end, with tiny glands, or laboratories, where the chemists, called cells, manufacture what is required to cook the food. A certain set of these laboratories are notable because they produce an acid, called hydrochloric acid, which is very well known.

This acid is produced from the common salt which is always found in the blood, because it is a necessity for Jack's The remarkable thing is that if a chemist, no matter how clever he is, other than one of the living cells in Jack's stomach, desires to get hydrochloric acid from common salt, he has to split up this very firm compound by powerful means; but the tiny chemists that live in Jack's oven can do it without any effort at all; and no living man can tell us how.

THE ENEMIES WHO TRY TO GET IN

The other interesting fact about this acid is that, quite apart from its use in cooking, or digesting, Jack's food, it is a great enemy of housebreakers and thieves, for it is what is called an antiseptic, which kills microbes, or germs. These tiny living things are Jack's chief enemies, which are constantly trying to enter his house, stealing from it and often poisoning it, or breaking down the partitions between one room and another, and causing destruction and ruin. One of their easiest and commonest ways of entry is in the food; they are far too small for the hall porter to notice, and they soon reach the oven. There they thrive until the chemists in the laboratories pour forth hydrochloric acid, and then they are overpowered by millions, and their dead bodies are digested and burned up, and so made useful. It is probable that Jack's house could hardly protect itself at all from the constant attacks of these housebreakers were it not for the hydrochloric acid which they meet so soon, and which can usually be trusted to kill nearly all of them, except when the oven is out of order, and the

chemists in its walls are not working properly. Unfortunately, however, certain microbes have learned how to coat themselves with a very dense and firm layer of something which the hydrochloric acid of the stomach cannot manage to get through, and they are consequently carried onward to find their way into the blood and they continue to work mischief there.

# TELEPHONING ANYWHERE AT ANY TIME

If this oven is to work well, to move its walls strongly and firmly, and produce suitable fluid for protective and cooking purposes, and not pass its contents on until it has done all it should to them, it must be perfectly emptied at regular intervals. In no other way can it have its walls thoroughly cleansed and kept in good working order; surely nothing more reasonable could be expected. Thus, if Jack overloads it, and takes in a fresh supply of food before the last is sufficiently cooked and passed on, or if he is always putting candy or apples into it between meals, his oven will never get a chance to have its walls thoroughly scraped down, and the chemists who live in them will grow weary, and will not be able to do their work properly, and everything will go wrong.

The oven and the chemists are all on the telephone, so to speak, from the hall porter; and no sooner does he admit anything he approves of than he sends a message to the stomach, which at once begins to prepare a fresh supply of gastric juice. The stomach "waters" by telephonic order, so to say, just as the mouth waters by telephonic orders from the eyes or the nose when we see or smell something delicious. But indeed there is no part of Jack's house which cannot telephone to any other part of it

at any time.

# THE LIVING WALLS OF THE OVEN

The oven into which the food passes next is a longer, narrower oven, and is known as the upper part of the bowel. Its walls, also, are lined with glands which produce a cooking-juice of their own; much more powerful is the special mixture of juices sent here from another great laboratory called the pancreas, and also from the liver.

If we study the inside of this oven, the

bowel, as we pass along it, we find that it gradually ceases to be an oven, and becomes more like a filter. Tiny little projections, like fingers of a glove, line its walls in millions; and each of these projections contains a loop of a blood-vessel.

Each projection is covered with living cells, which are chemists of a very different kind from those we have hitherto noticed in Jack's house. They make nothing; their business is to choose. As the contents of this oven, now at last fully cooked, flow past them, they pick out all the various substances which are good, and, as far as possible, reject And then they pass them into the little loop of blood-vessel in the finger-like projection, and in this way they pass off to the liver for further treatment.

All this time we have really been traveling along a central tube, or corridor, which commenced at Tack's front door and hall, and continued with his red lane and gullet—a very narrow stretch this—then expanded into its widest place, the stomach, and then narrowed again into the part which we have just been describing. If we continue our journey many feet further along we come to some new features.

TACK'S PROTECTORS

If Jack's house were a city, we should have to call these the barracks and military schools and police-stations. We find them in the wall of the bowel, and they are crowded with young and growing-up cells, which are soon going to be passed into the blood, where they will be the white blood-cells, Jack's protectors, ever ready to kill any microbes that have escaped the hydrochloric acid in the stomach or have entered by the ventilating shaft. Millions of these wonderful little protectors are poured afresh into the blood after every meal.

Such are some of the wonders of what is perhaps the humblest and the least beautiful part of Jack's house. It is manned by countless millions of living cells, living and dying, who never see the daylight nor have a moment for their own pleasure or recreation, but are constantly at their work in order to keep his body quite strong and healthy.

CONTINUED ON PAGE 6013. <del>~~~</del>

# The Book of STORIES



# OLAF OF ORCHARD FARM

OLAF was a little boy who lived on a farm in the North Country, where the grey rocks show through the green grass. He lived in Orchard the Farm, set snug in a nook between two hills, so that the west wind with the rain, and the east wind with the cold, could never have their way with it. But the kindly sun mellowed its roof, and shone on the lattice-panes in the window till they glittered like diamonds.

The farm took its name from the orchard behind the house, where apples and damsons ripened red and green and purple, among the bracken and the heather. Olaf used to play in the orchard when he was a very little boy, and later, when he was a big boy.

He used to play under the appletrees, thinking of the tales his father told him, and particularly of the brownie that had once lived at Orchard Farm, and had gone away because his father had given it a little pair of green breeches and a brown coat for saving his wife so much of the housework.

For the farmer and his wife had been on the farm for fifteen years and more, and often, as they looked round their farm kitchen and saw the brass kettle shining so brightly over the mantelpiece, and the warming-pans glittering

hams hanging up among the beams, and the black kettle that was used every day singing on the hearth, and the floor that was scrubbed I don't know how many times a week, and the wooden table that was scrubbed even cleaner, they would remember ever so long before—before Olaf was born—how there had been little need to work on these things, because while the farmer's wife was sleeping in bed, a little live thing would come night after night, and clean the floor and scrub the table. and put a shine on the kettle, and make the warming-pans so bright.

Don the walls, and the

They remembered those times, and they sighed to think that the little live thing had left them. They had learned to love the little thing, though they had never seen its tiny form, and even now they missed it, and were sad that it had gone away.

Olaf used to spend his days picking up the windfall apples in the orchard, or watching the sheep grazing on the short grass. Sometimes he would help his mother with the churning, or watch the saucepan to see that the porridge did not boil over. But whatever he did during the day he was always ready to meet his father, and the big farmer used to come into the kitchen carrying Olaf on his shoulder,



and saying, "A story, my son—a story? Shall I tell you about our own brownie?"

And Olaf would climb down and run and fetch his father's slippers. And his father would sit down heavily in the big chair, and take Olaf up, and talk of the little live thing that used to wash the dishes and keep the whole farm as clean as a new pin.

"And tell me why he went away,"

Olaf said one evening.
"Well, my son," the farmer said, "there's great pride in brownies. They'll work their fingers off for love, as you may say, but you mustn't thank them. Not that you mayn't put them a saucer of good milk, with the cream in, outside the door of a night. Many's the night I've seen your mother take the saucer, and lift the latch and slip out to leave it for our brownie. But that's all gone now. You may give them milk, and they'll take it friendly as it's meant. But if you pay them, they'll take what you give them, and never come again, unless-

The farmer's wife interrupted.

"Don't tell the child the way to get the brownie back, or he'll think of nothing else, and go traveling over the wide world by night, and maybe never find his way back to us."

"No, lass, I won't tell him. Well, my son, you must give him nothing, or you will lose him. And I, fool that I was, I was so grateful to the little thing for all he had done for us that I thought to

myself, 'I'll not let him work for nothing. That little one must have fairly worn his coat out slaving for us, and as for his trousers, who knows what a state they're in with him running to and fro?' So I brought back a piece of fine green cloth and a piece of brown, and your mother there sat up all night a-cutting and a-stitching, and in the morning the things were done, as neat a little pair of breeches and as handsome a coat as ever she made for you."

"It's all true, dearie,"

farmer's wife.

"That night, when your mother put the milk out, she laid the clothes beside it in a little parcel, and in the middle of the night we heard the little thing talking to itself. 'A nice pair of breeches,' it says, 'and a coat to my back! I can come here no more, no more, till a son of the house travels the world with me and finds me first.' "

"There, now you've told him," said

the farmer's wife.

"He'll learn some day, whether I've

told him or no," said the farmer.

When he had once heard about the brownie who had lived on the very farm where he was born, Olaf wanted to hear of him again and again, so that in the end the farmer and his wife used to end all their tales with a little bit about the brownie of Orchard Farm. Olaf felt it such a pity that the brownie should have left his home before he, himself, came to





live there. Some night, perhaps, he might have listened to its pattering feet.

He thought of the brownie all day, and felt that, although the world away from the moorland might be very terrible, he was quite willing to travel in it, if only by doing so he could bring the brownie

to the house again.

Olaf asked everyone he knew if they could tell him where to find the brownie. He asked the oldest apple-tree in the orchard—the one with the twisted trunk; but the tree said nothing. He asked the cows; but they said nothing. He asked the dog, and it barked about other things. Only the sheep helped him. When they had been cropping near low bushes and their wool was full of little rough brambles Olaf thought they seemed to want to tell him something. They said nothing, but him something. They said nothing, but they looked as if they knew. He tended the sheep throughout the year, and watched the young lambs grow into big sheep, and watched the old sheep lying in warm places in the spring sunshine while the new lambs played about them. He wondered if the lambs had been told where the brownie was hidden, and he half thought he might be lucky enough to overhear the old sheep telling

The farmer and his wife saw that Olaf was happy to be with the sheep, so they sent him every day to see that they did not stray too far away over the moorland.

All through the summer days Olaf used to lie among the heather, saying to himself, "Travels the world, and finds me first—travels the world, and finds me first."

At last, one June evening, as he was coming home from the sheepfolds, he heard the music of bagpipes, small and very faint, near him on the moorland.

He heard it again the next night, and the night after that, and every night, until at last, one midsummer evening, he made up his mind to follow it and find out who it was that played the pipes so sweetly.

He left the path, and followed the music, walking warily lest he should lose it. It sounded softly, and always before him, as if it came from the pile of rocks on the moor where there is a cairn, and where a little mountain ash waves in the breezes.

"Maybe it is the old people who live under the cairn," thought Olaf, for there is a tale in the countryside that a race of little people were buried beneath the pile of stones, and that they come out to dance on summer nights, in the moonlight, though no one has ever seen them.

As he came near the little precipice he knew that the music was directly above it. So he started to climb up. Halfway was easy enough, and he won his way up to the mountain ash. He twisted





himself over it, and rested there, wondering how to get higher, for he saw six feet of smooth rock up to the top, where there was a thick mass of heather.

There was a crack in the rock about half-way between the ash and the heather, and Olaf clung there, unable to climb farther, and knowing that if he slipped he would fall toppling to the bottom. And all the time the music of the bagpipes, scarcely louder than a concert of bees and crickets, sang close above his head.

"Oho, there-you with the music!" Olaf shouted at

last.

The music stopped suddenly. A little brown face with a small white beard looked eagerly through.

"So it's Olaf at last!" it said.

A thin, brown, hairy little arm stretched down through the heather and caught Olaf by the wrist.

"Pull now," said the little thing.

And Olaf pulled, and the muscles jumped out on the hairy little arm, and Olaf found himself scrambling over

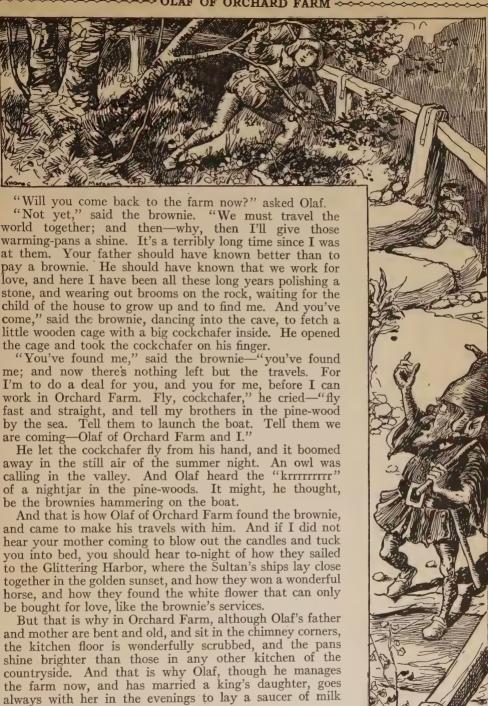
the heather at the top.

He lay sprawling on the edge of a little cleft in the rock, with high walls on the sides and far away in the midsummer night the shapes of the hills covered with pine-woods that slope to the edge of the sea. In one of the walls of rock there was a little cave, and just in front of it was a wee three-legged stool that had been upset, and a little set of bagpipes on the ground beside it. "I've been waiting for you a long time," said the little brown thing, as he helped Olaf to his feet. "Look!" And he ran into the cave, and came out dragging a broom behind him, and holding a stone so polished that even in the dim light Olaf could see his face in it. "I've worn out two hundred and thirty of these brooms," he said; "and polished that rough stone smooth—all for want of proper work since I had to leave the farm."

"Are you the brownie?" asked Olaf joyfully. "Why, I've been looking for you ever since I can remember! I should never have found you but for the sheep. I stayed with them and learned the moor music, the hum of the bees and the chirping of the crickets. When you played your pipes I knew it was different, and so I followed. That was why the sheep knew, I suppose—because you live on the

moor?"

"Yes," said the brownie, "I've very often taken the heather from their wool for them, when it was all matted and so uncomfortable. They know me quite well."



beside the orchard wall. "We can give him that, at least," says Olaf-"and

as much love as we can spare him."

And the brownie scrubs the pans and polishes them till they shine and washes the dishes, and is very, very happy to know that he will never be paid in money for it.

# THE CHILD WHO CAME BY NIGHT

# A TALE OF VERULAM IN THE DAYS OF ROMAN RULE

TWILIGHT was falling on the dense, swampy forest around Verulam, and, seeing this, the tired Roman legionaries formed a camp for the night in a deserted British hill-fort. As they were busy roasting some of the cattle captured after the great battle at Walton-on-the

"Cæsar," said the chief, "let your men push on."

Thames, the scouting party returned, headed by Conan, the young British chief from Colchester, who had thrown in his lot with the invaders. Conan's eyes flashed with anger and disappointment when he saw that the Romans were not only feeding in the fort, but were also preparing to remain there for the night.

"He will escape me! He will escape me!" he exclaimed. "What slow, sleepy gluttons all these Romans are!"

He spoke wildly in his native language. The soldiers of Rome looked at the handsome young barbarian with amused eyes. Had they known that he was

calling them names, they might have ill-treated him; for they were proud, fierce men, these warlike Roman farmers who had conquered Gaul, and were now driving the tribes of Britain before them.

"What a triumph we shall be able to give Caius Julius Cæsar on returning with him to Rome!" said one of them as he gazed at Conan. "When we capture Caswallon, we'll have a procession of a hundred of these British chiefs, and won't slaves be cheap!"

"No more wars for me then," said another legionary. "I shall buy a British girl to wait on my wife, and about ten sturdy Britons to work my farm. I'll soon whip them into shape, and then I shall live like a patrician."

Conan understood Latin, and he stared at the speakers in silent bitterness. Then, turning on his heel, he strode towards a small, slight man in bright armor who was pacing round the camp and carefully studying the position of the earthworks.

"Cæsar," said the young chief, "why let your men stand idling here! If you do not push on and attack Caswallon at once, he will take to the woods, and you will never get him. It is only an hour's march now to his

village." We could take him by surprise under cover of night, for I know where his watch is stationed and can silence that.

"How you Britons love each other!" said the great Roman captain. And his cold, thoughtful eyes lighted up with a strange, ironic smile. Then, changing his tone, he caught the young British

chief by the shoulder, and said in a stern voice, "You mad, foolish young savage! What would happen to my army if Caswallon, your father-in-law, caught us marching in single file in these woods at night? By Jupiter, if I thought you meant to betray me as you betrayed him at Walton, I would—" He stopped.

for there came a look on Conan's face that made even the conqueror of the world pause. It was not often that Julius Cæsar was fretful and ill-tempered, but a ten hour's march ever on the alert through steaming swamp and brambly forest had wearied him, and he was beginning to see clearly that he could not conquer Britain as easily as he had conquered Gaul.

Conan strode moodily down the hill and entered the wood stretching away in the darkness to Verulam, as the fortified town of St. Albans was then called. He hated the Romans, for he knew that they were his real enemies; he hated himself, for he knew that he was a traitor to his country; but still, above everything else, he hated Caswallon, the chief of Verulam and the brave leader of the united tribes of Britain.

Seven vears before Caswallon had given his daughter in marriage to Conan. Four years after that, Conan's father, the King of Colchester, had made war on Caswallon. Caswallon was a mighty chief, and he drove back Conan's father and stormed Colchester, and among the captives he made were his own daughter and the child which she had borne to Conan. In vain had the young

chieftain begged that his wife and baby should be returned to him. vain the young British woman tearfully prayed that she might go with her husband.

"They are my child and grandchild," Caswallon had said, "and they shall live with me until your father acknowledges me as his overlord."

This was a very high-handed way of bringing about a lasting peace, and it did not succeed. Maddened by the wrong done to him, Conan went over to the invading Romans, and induced his father to make an alliance with Julius Cæsar.

"I will lead your army safely to Caswallon's stronghold," he said to the great conqueror, "if, instead of taking him in triumph to Rome, you will leave



Conan saw that she was his own daughter.

him in my hands." And to this Cæsar

had agreed.

In spite of the insulting way in which the Roman had now spoken to him, Conan was still bent on avenging himself on his father-in-law. For some time he roamed in the dark forest, brooding over his injuries. Then lighting on a path, he moved warily on towards Verulam, to see if the way was clear for the advance of the Roman army next morning. Drawing his tartan closely

round him, so that it should not catch in the brushwood, he went forward as softly as a Red Indian. Though born by the seashore, he had as much knowledge of woodcraft as the people who dwelt in the inland forests. Even in the darkness he could tell, from the way in which the wild creatures around him behaved, if any man besides himself was about. Time after time he stopped for a minute to listen, and, hearing nothing, crept onwards to Verulam. He was about two miles from the British stronghold when a strange sound startled him. Hiding under a bush, he put his ear to the ground.

"It is a child crying," he said, as he arose. "Lost, no doubt. If it comes from Verulam it could tell me more than

I could find out myself."

Very cautiously he made his way to the spot. It was too dark to see clearly, but he could just distinguish a tiny figure sitting beneath a tree.

"What is the matter, little one?"

he said.

The little girl looked up. She was frightened for a moment, but then she smiled. Conan's voice was deep, but it was gentle, and he looked strong and comforting in the dark wood. She stole closer and gently touched his big hand.

"I came out to look for my father, and I can't find the path back to Verulam."

Verulam."
"Who is your father?" said the

young chief.

"Conan of Colchester," replied the child.

It was a rash thing to do in Caswallon's country, but Conan sat down with the child on his knee, and took out flint and tinder and made a torch of dry wood, and stared at the waif. It was a girl, fair-haired and blue-eyed, and charming to look upon. She was certainly the child of a great chief, for, instead of being clad in skins, she wore a gown of fine red linen, and round her neck was a necklace of precious amber.

"Why do you want to find your father, Mora?" exclaimed Conan, now

strangely moved.

Mora then recognized her own father. Throwing her little arms about his neck, she snuggled close up to him, half crying and half laughing, and said:

"Oh, daddie, daddie! I am glad I found you. Mammie is crying her eyes out because they want to hurt you."

"Who want to hurt me?" said

Conan.

"Grandfather and his chiefs," said Mora. "But mammie won't let them, and I won't let them. Why, daddie, you are crying just as mammie does."

The torch Conan had lighted went out, and he sat in the dark, wild forest hugging his child in his arms, while his tears fell upon her head. Now his bitter feelings against his father-in-law disappeared. He was ashamed of himself, and his one thought was to save his country and repair the harm that he had done by helping the invaders. Taking his daughter in his arms, he entered Verulam before day-break, and faced the terrible anger of his father-on-law.

"Kill me if you like!" cried Conan.
"I deserve it. But hear me first. You
must take to the woods. You don't
know how strong the Roman is, but
I do. He will storm Verulam in an
hour, but he cannot fight in the thick

orest."

Caswallon would not listen to his son-in-law.

"I will beat off Cæsar," he exclaimed, and then I will give you to the Druids

to be dealt with as a traitor!"

Early in the morning the Romans arrived, and, after driving in the warchariots of the Britons, they formed a "tortoise." Each legionary raised his mighty shield above his head in such a manner as to overlap the shield of the soldier in front of him; the Roman army thus became a vast, strange, crawling creature protected by strong, brazen scales against the javelins and arrows vainly hurled down by the besieged Britons. In a short time Verulam was taken by storm at two points, and the legionaries then lowered their shields and rushed into the town—and found it empty.

For Caswallon had, at the last moment, followed the advice of Conan, and fled with all the people to the trackless forest. There the Romans dared not follow him. They camped on the outskirts of the wilderness, hoping that their foes would be forced out in search of food. The Britons were more used to living in the woods than in cities, and the Romans

might have had long to wait if Conan had not brought his brave father-in-law on a friendly visit to Julius Cæsar a few days

afterward. A peace was made between the Britons and the Romans which lasted for nearly eighty years.

# THE LOVE OF A MOTHER'S HEART

RIZPAH SORROWING FOR HER SONS

RIZPAH had been loved by that strange and romantic man who stood head and shoulders above the tallest men in Israel, was capable of the most splendid daring, was subject to moods of the blackest melancholy, was now the shouting and trampling captain of furious war, and now the rapt and silent dreamer listening to sad music-Saul, King of Israel, the first man to reign over the most wonderful and interesting people in the whole world. Rizpah had been loved by this man, had been taken by him to live in a palace, had grown up amidst scenes of splendor and magnificence, had become surrounded by pomp and every imaginable

But she remained true to her womanhood. There was one passion in her heart which neither the idleness nor the glory of court life could subdue. She

loved her children.

To this noble woman the pleasures of a life at the king's court were as nothing to the joy of watching her little sons playing with their toys, telling stories to each other, running races in the gardens, or lying asleep in their beds with flushed faces, tumbled hair, and parted lips. As they grew older, her love for them increased.

She took a glowing pride in the beauty of their faces, the grace and strength of their bodies, the reckless daring and unflinching courage of their minds. She would dream dreams of their future glory. She would picture to herself great national pageants, where her sons should figure as the darlings of the people, the worshipped heroes and adored captains of the house of Israel. Middle age had no fears for this devoted mother; her beauty would fade, her strength would diminish, but she would have the love and devotion of these splendid sons; and when she was old, and bowed, and dimsighted, and all the glory of her life had departed, she would have at her knees and would hold on her lap and would press to her withered cheeks the young 

sweet faces of her children's children. So there was nothing but joy and delight and satisfaction in the heart of Rizpah.

But suddenly Rizpah's life was saddened, and for her there was nothing but darkness, ruin, and death, as is related in the following story from the Bible.

A famine had fallen upon the land in which David was king. The cause of this calamity was attributed to a crime of the dead Saul. He had put to the sword people of the Gibeonites without cause, and only in the base hope of standing well with his own people of Israel. The Gibeonites were living in the land on a pledge of safety which the Israelites had made them when they conquered the country. For this reason, it was held, famine had come upon the land. Therefore David determined to make peace between Israel and the Gibeonites, that the crime of Saul might be wiped off the earth, and the frown of God be removed from the face of the sky. Consequently he sent for a number of the Gibeonites, and asked, "What shall I do for you, and wherewith shall I make atonement?"

The Gibeonites replied, "We will have no silver nor gold of Saul, nor of his house; neither for us shalt thou kill any man in Israel."

David pondered some time over these proud and honorable words, and then said, "What ye shall say, that will I do

Then they answered, "The man that consumed us, and that devised against us that we should be destroyed for remaining in any of the coasts of Israellet seven of his sons be delivered unto us, and we will hang them up unto the Lord in Gibeah of Saul, whom the Lord did choose."

"I will give them," said David. Now, the word "son" included the sons of the sons of Saul, and one of these grandsons was the child of Jonathan. But David remembered his great love

for Jonathan, remembered the vow they had made together at parting, and he could not bring himself to make a victim of this youth. So Jonathan's son was spared, and among the seven sons of Saul delivered over to the Gibeonites were the two sons of Rizpah.

It was harvest time. From a sky of unstained blue the pitiless sun beat down

upon fields of whitening barley.

A scream of inexpressible agony tore the air. A shriek of anguish, that froze the blood of men, and echoed in the souls of all who heard it.

her head, uttering their hideous cries, and attempting to strike further terror into her heart. Away in the distance could be heared the roar of lions and the barking of wolves, waiting for the night.

She spread the sackcloth upon the rock, seated herself upon it, and with her arms resting on her knees, her eyes set in unutterable woe, watched the birds

and thought about the dead.

The day passed and the night came, and she stood up under the moon and stars, a dark, solemn majestic figure,



RIZPAH SAT WITH HER ARMS RESTING ON HER KNEES!

This picture is from the painting by Mr. Briton Riviere, R.A., and is reproduced from an engraving by Mr. H. Scott Bridgwater.

The procession, carrying gibbets, passed away from the city, and halted on the top of a hill. The gibbets were erected. In a few minutes seven of the sons of Saul were dead bodies hanging in the air.

And now, when the Gibeonites had departed, and the dead men were left hanging alone on the hill-top, there were seen in the air the black wings of vultures, and far off in the distance the forms of beasts of prey. From the city there issued a woman with eyes set in unending melancholy, and such a grief on her lips as caught the breath and paled the face of all who saw it. Alone and despairing, she passed out of the city, dragging sackcloth along with her, a picture of abject misery.

The cruel vultures wheeled round over

alone with the dead. Many shapes of terror moved round about her, growls of baffled rage reached her ears, the ropes of the scaffold creaked in the night silence.

The people who were witnesses of this scene reported it to King David; for, day after day, and night after night, the mother watched by the bodies of her sons, and swept the birds away with her cloak.

Then David, remembering all the past, went himself for the dead bodies of Saul and Jonathan, and took the bodies of the dead sons, and gave them royal burial, and prayer was made to God for the people of Israel. But as for the heart of Rizpah—it was broken.

CONTINUED ON PAGE 6017.

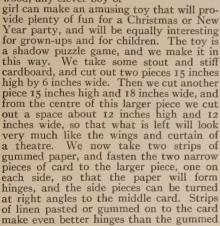
# THINGS TO MAKE THINGS TO DO



# A LITTLE SHADOW THEATRE

CONTINUED FROM 5743

BY means of scissors, paste, cardboard paper, and a piece of wood, any clever boy or



The picture on the next page shows how this screen-frame will look. To make it neat we can cover one side of it with black paper—not the side on which the linen or paper strips are pasted. Then, turning the screen over, we paste over the opening which we have cut out a piece of ordinary semi-transparent tracing-paper. The paper should be as white as possible. The screen is now ready, and we can put it aside while we make the rest of the toy.

Now let us cut out four pieces in stiff cardboard, each about three inches high, and these should be, if possible, rather fantastic and humorous, as that will add to the fun of the game. Any kind of upright figures will do, and may be copied from books, but if there is any difficulty about drawing men, four upright pieces

of card may be cut into any kind of irregular shapes, and will serve for the purpose of the game.

A piece of wood, 12 inches long by about 6 or 7 inches wide and ¾ of an inch thick, is wanted for a stand for these figures, and running the whole length of the board we cut six grooves at regular intervals, just wide and deep enough to hold the figures upright when they are stood in these grooves.

We now take some stiff paper and make four extinguishers, by rolling up the paper in the same way as for a grocer's sugarbag, sticking down the edge or flap, and cutting the opening evenly all round. Then we sew a little ring in the top of each. The extinguishers should be about 4 inches high and 2 inches in diameter at the bottom.

Next we get a thin stick about 2 or 2½ feet long, and in the end put a nail or drawing pin, and to this fasten a straight piece of wire about 12 inches long with the end turned up slightly to form a hook. The wire should be stout enough to remain stiff and straight. All we want now for our game is an ordinary candle in a candlestick.

Any number of people may play at puzzle shadows. Stand the screen on the table, with the wings folded at right angles, as shown in the picture on this page, and put a lighted candle some distance at the back of it. One who does not take part in the game acts as master of the ceremonies. He puts the wooden stand between the screen and the candle, and then places the four figures in any of the grooves—not, of course, all in the same groove.

All other lights in the room except the candle are turned out. The first player now takes his place before the screen, and

### ⇔ THINGS TO MAKE AND THINGS TO DO ⇔

he must on no account look round or over it to see what is behind. Hooking the

wire holder into the ring of one of the extinguishers, he lifts this over the top of the screen, and, guided only by the shadows of the figures and extinguisher on the paper front of the screen, he tries to put the extinguisher over one of the figures. So long as the shadow of the extinguisher is above

it may be moved about in any direction, but directly it touches or begins to cover the shadow of a figure it must be let

down at once. The holder is gently unhooked. and another extinguisher is lifted over the screen.

Great is his astonishment when he finds, as is usually the case, that instead of extinguishing all four figures, he has set down the extinguishers



the shadows of the figures THE FRAMEWORK OF THE THEATRE

at quite long distances from them. Nothing is more deceiving than the shadows on the screen, and as each

takes his player turn the candle or the figures are moved so that the shadows do not appear in the same places as before. The player who covers most figures wins the game, or, if it is desired to prolong the game, points may be given for each figure covered, and these points added up at the close.

It is essential that the master of the ceremonies gives no indication either by word or

by the expression of his face as to how a player is succeeding while he is endeavoring to cover the figures; and it is important, too, that the candle be kept well back, so that the extinguishers, as they are moved about cannot get into the flame and catch fire.



THE LITTLE MEN FOR THE SHADOW THEATRE

# AN EASY WAY TO MAKE AN HOUR-GLASS

N the cid days time was measured by an hour-glass—that is, an object very much

like an egg-boiler, only larger. These were two bulbs of glass with a small passage between them, and one of the bulbs contained a quantity of sand that took exactly one hour to run through the opening into the other bulb. Then, when it had all run through, the hour-glass was reversed, and the sand ran back again into the first bulb, thus measuring another hour, and so on.

Any boy or girl can make an hour-glass without much expense. We take two bottles of the same size and shape—a square and squat shape is the best. Then we take a quantity of the finest washed and sifted sand, and put this into one of the bottles. To get the sand we may buy the finest sand at a paint-shop, and carefully sift it through coarse muslin so as to get only the finest. Now over the neck of the bottle we tie a piece of fine

indiarubber bladder, or a piece of parchment will serve the purpose, and prick a hole in it sufficient for the sand to trickle through in a fine but constant stream. Turning this

bottle upside down on top of the other, as shown in the picture, we let the sand trickle for an hour and then take the top bottle off. We remove the indiarubber covering, and tie it on the second bottle, into which the sand has run for exactly an hour. Then, after removing the surplus sand from the first bottle, we invert the other over it, and let the sand gradually trickle back, checking it carefully to see that it takes exactly an hour to run through. Then, keeping the bottles one over the other in the position shown in the picture, we bind some linen round and round the necks to keep them together, and our hour-glass is complete and ready for use. In removing the indiarubber covering from one bottle to the other

we must be careful not to tear the hole any larger, or the sand will take less than an hour to pass through again. Also, before beginning, sand and bottles must be perfectly dry, or the sand will not flow evenly through the hole. 



# GOOD GAMES FOR A CHRISTMAS PARTY

TO make a Christmas party a thorough success there is nothing like having plenty of variety in the games. There is no chance then of the boys and girls getting tired.

A very good game for a large or small party is that of "guessing with the wooden spoons." One of the

party-a girl, for instance—is blindfolded, and sits upon a chair. She is then given two large wooden spoons, such as are in common use in every kitchen for stirring puddings, cakes, and so on. One after another the other boys and girls come up to the blindfolded sitter and stand or kneel before her, and she has to guess who each one is by simply feeling him or her with the wooden spoons, as shown in the first pic-

ture on this page.

The task is very much more difficult than it looks, and there is great fun as the spoons go over the face and body in the attempt of the blindfolded player to discover

the identity of the other.

Of course, any outburst of laughter when the spoons are going over our faces would disclose our identity, so we must keep perfect silence. When anyone's identity is guessed, he has to be blindfolded and must take the spoons. We must be careful when using the spoons to touch another player with them quite lightly, so as not to hurt him; and



GUESSING WITH THE WOODEN SPOONS

of half a sheet of notepaper, and kneels down on one side of the tapes, and a boy kneels down on the other. The girl then has to try to fan the egg-shell across the tape on the boy's side, and he has to try to blow the shell back across the tape on the

girl's side. The one who first drives the egg across his partner's line three times wins the contest. Nothing must be used by the girl but the paper fan or her hand; and the boy, on his part, must simply blow with his mouth.

Blowing out the Christmas candle is a good old Christmas game that is amusing. A lighted candle is placed upon a table or chair, and each player is, in turn blindfolded and stood with his back to the candle, about two feet away. He is then told to take three steps forward, turn round three times, take four steps towards the

steps towards the candle, and then blow it out. In the majority of cases the blindfolded player will lose all idea of distance and position, and when he blows will be in quite another part of the room from that in which the candle stands. Of course it is wise to have a player or two standing by the side of the candle to prevent any blindfolded player who does happen to get near it from going too close to the light as he might have an accident.



BLOWING THE EGG ACROSS THE LINE

any player who wears glasses should remove them.

Another good game for a Christmas party is that of blowing the egg. Two pieces of cotton tape are stretched across the carpet. An ordinary hen's egg—not too large—which has had the entire contents removed without cracking the shell—is laid exactly midway between the tape lines. A girl player then makes a little paper fan out



FANNING THE EGG WITH A PAPER FAN

A game requiring a good deal of ingenuity is that of Introductions. The idea is that a father and mother, and son or daughter—three persons in all—are being introduced to the company.

The names have to be selected in such a way that the last name will form a familiar word, and this requires skill if it is to be done well. Here are some examples.

Mr. and Mrs. Terry and Miss Terry (Mystery).

### → THINGS TO MAKE AND THINGS TO DO

Mr. and Mrs. Chovy and Anne Chovy

Mr. and Mrs. Builder and Master Builder. Mr. and Mrs. Moore and Owen Moore

Mr. and Mrs. Fulness and Grace Fulness. The game of Magic Music is exceedingly interesting for a large Christmas party. One player goes out of the room, and some small object is hidden. Then the player is called into the room, and he has to find the object, being guided to the place by the music.

When the music gets softer the searcher is getting away from the hidden object; and, on the other hand, when the music gets louder it is an indication that he is getting near. The person at the piano must, of course, be a good player, must know where the object is hidden, and must have a clear view of the searcher as he goes from place to place.

Still another game that causes great fun and gives plenty of opportunity for ingenuity is called "What is My Thought Like?"

One player goes to all the others in turn, and onle player goes to the days asks, "What is my thought like?" and each player mentions some object. Then the thinker declares his thought, and each of the other players in turn has to say why this thought is like the object he mentioned. The game might go on something like this.

'What is my thought like? Sugar, a feather pillow, a blush rose, a kitten, air, and so on, are some of the answers

"I thought of a little girl of three. Why is she like sugar?"

"Because she is sweet."

"Why is she like a feather pillow?" "Because she is soft to the touch."

"Why like a blush rose?" "Because she is pink. "Why like a kitten?" "Because she likes play." "Why like air?" "Because she is light."

And so the game goes on.

# A JUMPING FROG MADE FROM A WISHBONE

WE all have poultry at Christmas-time, and there are plenty of merry-thoughts, or wishbones, to be had. It is quite easy from one of these to make a jumping frog; some-

thing like those wooden ones that are sold in the streets of any city. We take the wishbone, and first of all thoroughly clean it, leaving it a day or two before using. Then we take a piece of strong, thin string, and, doubling it, tie it securely to the two arms of the bone about an inch from the

ends, as shown in the picture. Now, we take a strip of wood a little shorter than the bone, and about half an inch from one end we cut a notch right round. Slip the stick half-way through the doubled string, midway between the two arms of the bone,

and turn the wood round and round until the string is twisted up and shows a strong re-Then pull the stick through until the string clings round the notch. Cut out

of thin cardboard the rough resemblance of a frog, and stick this with glue or mucilage to the top of the wishbone. All that is now needed is a touch of glue on the underside of the bone where the end of the stick will touch it when it is pulled

over as in the picture. Having pulled the stick over, lay the bone, or frog, on a table, and in a moment or two the glue will cease to hold, and the springiness of the twisted string will cause the bone to jump quite a distance.



ALL boys and girls thoroughly enjoy a Christmas-tree, and, indeed, Christmas would not seem Christmas without the familiar tree. Perhaps the most enjoyable thing about the Christmas-tree is the trimming of it, and a few general hints upon how to do this and how to select a good tree will be helpful to us. First of all, in selecting a tree we should see that the stem is firm, the tree well shaped, the branches drooping gracefully, and that these branches are fairly firm, so as to support properly the things hung upon them.

It is a great mistake to overload a Christmastree, and heavy articles should not be hung upon the branches, but should be arranged round the base of the tree. There should always be plenty of candles on a tree, and these should hang perfectly upright, or we shall find that so soon as they are lighted the grease will drop upon the tree and table. There should also be a large number of silvered

balls, to reflect the light of the candles These at once give a brilliant and festive

appearance to the tree.

We must be very careful not to hang any flimsy or inflammable toys above the candles, for when the candles are lighted the toys hung immediately over them might catch fire, and the tree would soon be ablaze, endangering the house.

At the top of the tree we place a Father Christmas, dressed in bright scarlet; and the toys should be arranged at intervals, the articles of different sizes and shapes being placed so that the tree looks well balanced.

The tree should be placed in a fancy flowerpot, or, if an ordinary red earthenware pot is used, this may be covered with crinkled colored paper. To light the candles on a Christmas-tree a long taper will be found the best thing to use, and to put them out it is wise to have an extinguisher tied to a stick, but on no account must you blow them out.

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# SIMPLE EXPERIMENTS WITH AIR AND WATER

WE can learn a great deal of science from the most familiar objects in our homes, and an interesting half-hour may be spent in performing simple experiments that will teach us much that we ought to know. The following tricks and experiments can all be performed without buying any special apparatus

without buying any special apparatus.

First of all, we can perform an experiment that will show us how the air, that is invisible and does not seem to have any weight, is actually pressing down upon us and upon everything on the earth's surface. We take a wide-necked bottle, such, for example, as the water-bottle in our bedroom, to help us in our experiment, and we also prepare a hard-boiled egg by carefully removing all the shell.

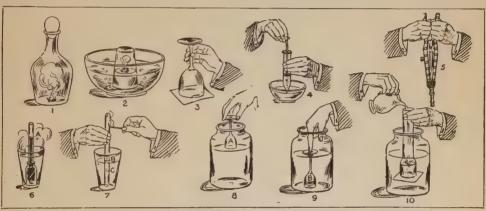
egg by carefully removing all the shell.

Now we put into the bottle a piece of lighted paper, and, after a second or two, place the egg in the neck of the bottle as though it were the stopper. The egg will, of course, remain there just as if it were in an egg-cup. At

fact that the heat from the lighted paper has expanded the air, and the glass will not hold it all. A few moments after the water is seen to rise in the tumbler.

Still another experiment will prove that the air exercises a pressure, not only downwards, but upwards as well. We take a wineglass, and fill it carefully up to the brim with water. Then we take a thin sheet of paper, and place it on top, so that it touches both the surface of the water and the rim of the glass. Now, holding the paper carefully in position, we turn the glass of water upside down, and the water will remain in the glass apparently suspended.

If we should like another experiment to prove the downward pressure of the air, we can use our basin of water again, and take a small ear-syringe such as is found in every house. We fill it with water, and invert it with the point in the water in the basin.



EASY EXPERIMENTS THAT CAN BE TRIED IN EVERY HOME

least, that is what some of us would expect. But if we watch the hard-boiled egg we shall see, after a time, that it is gradually going down the neck of the bottle as though it were being sucked in. Then, suddenly, it will enter the bottle with a loud noise. What is the explanation of this? It is very simple. The burning paper heated and expanded the air in the bottle, and some of it was driven out through the opening at the neck. Then the egg was placed in the neck and the opening was stopped up. Presently the air in the bottle cooled, and, as it lost its heat, it contracted, or filled less space, so that there was a partial vacuum in the bottle, and the air outside pressing upon the egg drove it into the bottle.

There is another simple experiment which shows clearly the pressure of the atmosphere. Take a basin of water, and on the surface of the water let a cork float. Now place on the cork a piece of lighted paper, and over these invert an empty glass, pressing it down gently into the water. Bubbles will be seen to come from under the glass. This is the air being driven out owing to the

Now we press down the rod and empty the syringe. But directly we pull up the rod again the water rushes up and fills the syringe. The reason of this is that the pressure of the air all over the surface of the water in the basin drives the water up into the syringe.

An interesting experiment, this time with a pair of ordinary fire bellows, proves that the pressure of the atmosphere is exerted, not only above and below, but sideways and in all directions. Having blown all the air out, we completely stop up the nozzle and the vent-hole with corks, and then, if the bellows are in proper order and are air-tight, no boy will be able to open them, no matter in what position they may be held. The air outside pressing equally on all sides holds the bellows together.

All bodies, solids, liquids, and gases alike, when heated expand—that is, fill more space—and two simple experiments will show this clearly in the case of liquids and gases. We take a small bottle, fill it with some colored liquid, such as water in which a little Glyco-Thymoline has been dropped, and cork it up. But we must see that the cork is pierced,

### $\Leftrightarrow$ THINGS TO MAKE AND THINGS TO DO $\Leftrightarrow$

and a piece of glass tube, open at both ends, inserted. Now, if we plunge the bottle into a vessel of warm water, as seen in picture 6, the colored liquid will be seen to rise in the tube to A.

In order to show that gases also expand we must use a glass tube closed at one end. We take the tube, which is, of course, full of the gas that we call air, and put it into a tumbler of water, as shown in picture 7. The water rises to a certain point, B. Now we hold a lighted taper to the upper part of the glass tube, and, after an interval of a second or two, the water slowly descends in the tube from B to C.

Another experiment with a wine-glass and a jar of water will show that gases, such as the atmosphere, possess the property of compressibility—that is, they can be pressed into smaller space. We take the wine-glass and invert it on the surface of the water. The glass is full of air, which occupies the whole

of the space A in picture 8. Now we press the glass down to the bottom of the jar, and we see, as in picture 9, that some water has risen in the glass, and the air that formerly occupied the whole glass now fills only the space B, and as none has escaped, this proves that air can be compressed.

There is a simple experiment to show that liquids, like gases, exert a pressure equal in all directions. Take a common glass lampchimney and place below the widest opening a piece of cardboard. Hold this against it and plunge the whole into a jar of cold water. Now remove the hand that held the cardboard, and it will be found to remain in position, the upward pressure of the water holding it against the glass. Now pour water gently into the lamp-chimney above; it will be seen that the card continues in position until the water in the glass reaches the level of the water outside the chimney.

# TRICKS TO DO WITH A PIECE OF STRING

HERE is an excellent trick that is quite easy to perform, and needs no other apparatus than a piece of fairly thick string about five or six feet long. We tie the ends together, and then pass the doubled string through a buttonhole of our coat. We then put our thumbs through the looped ends, one at one end and the other at the other, and, having done this, hook our little fingers into the upper strings of the opposite hands. If we draw

our hands outward the appearance will be as seen in picture I, and the string will look so entangled as to suggest that it will be a task of some difficulty and take some time to release it from the buttonhole. But, as a matter of fact, the release may be made almost instantaneously, by simply disengaging the right thumb and left finger, and pulling the hands apart. If this be done quickly, it will appear to those looking on that the string has torn

the buttonhole. Their astonishment on finding it intact will make it quite worth while the trouble it gave us to practise this ingenious little trick.

Another trick with string that can be done quite easily after a little practice is that of tying a knot on the left wrist without letting the right hand get near it. We take a piece of fairly thick and heavy string that is also very pliant; holding one end between the finger and thumb of the left hand, we take the other end in the right hand, and, with a rapid

jerk, throw a loop toward the left hand, as shown in picture 2. The loop can, with a little practice, be made to fall over the left wrist, as in picture 3, and if, at the moment this happens, the right hand pulls back the end that it is holding, the string will be tied tightly round the left wrist.

A trick that creates a good deal of astonishment is this. Take a piece of string about three or four feet long, and join the ends; then

placing one hand through each end, give the string complete twist, and put into the left hand the end that was in the right hand. The string is now shown, as in picture 4. Passing the right hand quickly along the double string, we hold the place where the string crosses, so as to conceal it, as in picture 5, and we ask a friend to cut the string right through at the part we are holding between our two hands.

How to perform simple tricks with string.

They do this, and there are four ends, showing that the string must now be in two pieces. Then we offer to join up two of the ends with our teeth; and, putting all four ends in our mouth, with a pass or two, pull out the string, and there is only one long piece. The explanation of this trick is, that owing to the twisting of the string and the particular way in which we hold it, so that the friend must cut somewhere near our right hand, the string is cut into a long piece and a very short piece. We put the four ends in our mouth, and with our tongue remove the small piece. 
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# THE MEANING OF HALLOWE'EN

HALLOWE'EN, which brings to most of us visions of fun and jollity, is an old, old festival. The old Romans held it about the first of November in honor of Pomona, the goddess of fruit trees. In Britain the Druids celebrated a festival at the same time in honor of the sun god, and in thanksgiving for harvest, and the two festivals seem to have become one in the minds of the Britons. When the people became Christians the early Church Fathers wisely let them keep their old feast, but gave it a new association by holding it in commemoration of all departed souls. Thus the eve of the festival came to be called All Hallow E'en. The name comes from The name comes from

the old English word halwe, or as we now

say, holy.

Many beliefs grew up about this feast, such as the belief that on this one night of all the year, the spirits of the departed were allowed to visit their old homes. In many parts of the old countries food was left, hearths were carefully swept, and chairs were set in order before the inhabitants of the villages

went to rest.

Many of the old superstitions, some of them going back as far as pagan times, came to this country with our English ancestors, and though they lost their meaning long ago, we still keep some of the quaint old customs.

# THINGS TO DO ON HALLOWE'EN

### DUCKING FOR APPLES

ET ready two tubs, each half filled with water, one for the boys, one for the girls. Put in each a number of apples with long stems, each stem having a name very securely attached to it on a slip of paper. The fun consists in trying to catch one of the bobbing apples with the teeth; the apple must not be caught by the stem. The name attached to the apple is supposed to be the name of the future helpmeet of the youth or maiden who contrives to fish it out of the water. The hands must be fastened behind the back for this trick.

### BURNING NUTS

Name two nuts and place them on a shovel held over an open fire-a gas log will do. Repeat this charm:

Nuts I place upon the fire,

And to each nut I give a sweetheart's name.

If either of the nuts hisses or steams, it snows that the owner of the name has a cranky temper. If the nuts pop together, and toward each other, the friendship between the two persons will probably increase and grow warmer. If, however, one does not pop at all, or they fall away from each other, the feeling will grow cooler and the friends will be divided. shows that the owner of the name has a cranky

### APPLE AND CANDLE TRICK

Hang by a stout cord, attached to a hook in the ceiling, a short stick—about eighteen inches long. The stick must be fastened so that it will balance horizontally. At one end of the stick fasten a short piece of lighted candle, at the other fix an apple. Set the stick revolving rapidly, and let the players try to snatch the apple from it with their teeth.

### APPLE PARING

Peel an apple without breaking the skin, swing the paring round your head three times and let it fall to the floor over the left shoulder. The letter formed as it falls to the floor will give the initial of your future spouse.

### COMBING HAIR BEFORE MIRROR

Comb your hair at midnight standing alone before a mirror by the light of a candle. If a face appears, in the glass, looking over your shoulder, it will be that of your future partner.

### WINNOWING GRAIN

Steal out into the garden or barn alone near midnight and go three times through the motion of throwing grain against the wind. The third time your future spouse will appear in some mysterious way, or you may gain some intimation of his or her station in life.

### PROPHECY BY FEATHERS

Take three small, fluffy feathers. On three small pieces of paper write the words "blonde," "brunette" and "medium" and attach these pieces of paper to the ends of the little quills. To make the test hold up the feathers by their tops, and with a puff of breath send them flying towards the table. of breath send them flying towards the table. The one that falls nearest to you tells the complexion of your true love. The test should be made three times to make the prophecy quite sure.

### **GHOST WRITING**

With a perfectly new pen, dipped in pure lemon juice, write a number of charms, or prophecies on, small pieces of paper, and let them dry, when the writing disappears. Fold the slips of paper, and place them in a basket, from which each player draws one. When the pieces of paper are held over the flame of a lamp or candle, the heat causes the writing to reappear, and the prophecy can be read. This trick may be made quite mystical by appropriate ceremonies, such as reading the prophecies in a room dimly lighted by a small colored lamp over which the slips must be held. One person should read the slips one by one, and can add to the effect by reading very slowly and solemnly. The reader can be one of the players who has slipped out and assumed a long cloak, witch's hat, and a small black velvet mask.

# ESAR IN TRIUMPH AND HIS PALACE IN RUIN



AN EMPEROR OF ROME IN A GREAT TRIUMPHAL PROCESSION
This picture is from the painting by F. W. Topham, and is published by permassion of the Corporation of Leicester.



PALACE OF THE CÆSARS ON PALATINE HILL, AS SEEN TO-DAY FROM THE FORUM 

# The Book of ALL COUNTRIES



The approach to St. Peter's, the greatest church in the world.

# WHAT I SAW IN ROME

A LETTER FROM THE ETERNAL CITY

IF I were clever enough to write a book, I should like it to be about Rome, and I should like it, I think, to be in three great chapters. There would be, first, the mystery of Fallen Rome, the vast world ruin here at our feet, and its strange spell over us as we walk about it, as of

a magnet from a grave. There would be, second, the power of the beauty of Rome, the compelling force that lies in such a store of wonderful things that men can hardly dream of. And there would be, again, the Voice of Rome, the stirring of emotions that must come to the coldest heart that comes to Rome, the central home of our civilization, even though we live in lands of whose existence the Cæsars could not dream.

Rome is, in truth, the Eternal City; we may say of it that its past and its present and its future are one. Time rolls back in Rome as in a book. We walk on the very dust of Caesar, and every step we take is on historic ground. Fallen Rome, the Rome which ruled the world for 500 years, and had a world-wide empire before Jesus was born, is twenty feet under us wherever we go. Cæsar's palace, Peter's prison, Paul's lodgings—they

are the foundations of the earth that we tread from morning till noon,

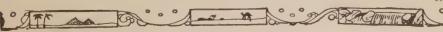
from noon till night. The huge area of the Forum has been laid open; here and there elsewhere a fragment has been dug up, a cellar has been excavated, and every day men dig up bits of the Roman Empire.

But in these other places we find only bits, while Rome must be razed to the ground if the wondrous things beneath it are to be revealed.

What these wonders are we know in part. There are no ruins in the world so thrilling as these. The difference between Egypt and Rome is this, that the interest in Egypt is historical, the interest in Rome is human. We know almost nothing of Rameses; we know almost everything of the story of Cæsar.

And Rome brings Cæsar as near to us as Napoleon. We walk across the place where Julius Cæsar lived. We stand on the spot where he was stabbed by Brutus. From the only authentic statue of him, on the Capitol, we can walk down into the great Forum, and read Mark Antony's speech in the place where Antony stood when he made it, and in imagination we can

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hear the shouts of the populace in answer to his burning words.

I shall not try to picture the Forum. I suppose there is no other site on the earth in which is concentrated so much history of the world. Out of the little narrow streets you come suddenly upon a great flight of steps, handsome and To the left is another flight, higher and steeper still, with a church at the top. One day, long before any of us was born, a man walked up these steps, sat down in that church, and listened to the monks singing vespers. One of the great hanging lamps was swinging to and fro, and somehow the swing of the great pendulum of Time came into the man's mind: he thought of the Capitol above, and the Forum below, and of all that they had been; and he came down those steps to write "The Decline and Fall of the Roman Empire."

Up the other side of the steps is a winding way to the top for carriages. We run up the central way, past the ancient statues, past the milestone from the Appian Way—which Paul must have looked upon and said, "Still seven miles to Rome"—past the cage of living wolves kept there in memory of Romulus, into the great square. Let us go into the Capitoline museum and spend five minutes in the most amazing portrait gallery in the whole world.

# THE ROOM FULL OF EMPERORS

Here, in a little room no bigger than a dining-room, are the Roman emperors, with their wives and families and friends. imaged in marble by those who knew them. You feel here that these men were real, and you know what we mean when we say that Rome impressed its image upon the world for all time. For here is Rome; here are the Cæsars. Here is Julius Cæsar, next to him Augustus and his mother. Here is Marcus Aurelius as a boy, then as a man, then his wife, then his daughter, then her daughter's husband. Then the next emperor, who, they say, was murdered, then the wife who murdered him. Here is Nero's mother, who killed her husband -also here-to make way for her son. Then Nero, who killed his mother.

In the middle is the fine equestrian statue, in bronze, of Marcus Aurelius, the emperor and philosopher who lived before Christianity had made its way, and might have changed the history of mankind if he had been born a little later. Among the faces that we meet in Rome are some that haunt us as we go about, and we never forget the face of Marcus Aurelius, or the half-sad, thoughtful face of the young Augustus.

# TF CÆSAR COULD HAVE MET JESUS

The face of the beautiful statue of Augustus holds all travelers in Vatican sculptures, and one may wonder whether, if he could have met Jesus, if they could have sat here, in the Capitol, looking over Rome, and have talked for an hour, he would have accepted the religion of Jesus and changed the course There might have been no of Rome. Crucifixion, Jesus would have conquered the world in His own day, the long and terrible history of Christianity might have been utterly different, and the mind of man cannot conceive the differences it might have made. One may also wonder what might have happened if Marcus Aurelius had reigned when Augustus did, and if he could have known Jesus of Nazareth. But let that go: the Crucifixion happened. I saw, this afternoon, the first picture of it in existence—a caricature on marble drawn probably by a page in Cæsar's palace, 300 years after the Crucifixion happened.

# THE WONDERFUL RUBBISH HEAP

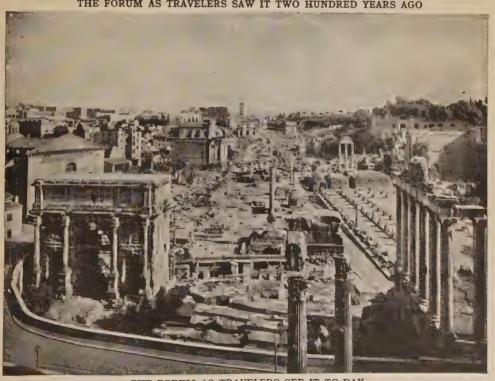
Let us leave the Capitol, and come down to the Forum on the other side. It is disappointingly small to the eye at first, but as we sit and think, it grows and grows until it is a very wilderness of doom. We must have in our minds a clear notion of what has happened in the Forum since the days when this place was the central architectural glory of the world. As the history of Rome was submerged by the coming up of other nations, so the very monuments of Rome were buried in the dust of centuries. The palaces of Cæsar fell.

Their temples broke in pieces, and hundreds of years of ruin left Rome a rubbish heap. By the time the twelfth century came, the place where these marvels had stood was an impassable wilderness of rubbish. Orchards and gardens sprang up where temples had been, and the avenues of triumphal processions were covered with teams of oxen. The peasantry grazed their cattle here;

# FORUM BECAME A RUBBISH HEA



THE FORUM AS TRAVELERS SAW IT TWO HUNDRED YEARS AGO



THE FORUM AS TRAVELERS SEE IT TO-DAY

THE BOOK OF ALL COUNTRIES &

mechanics set up their workshops here; and only a few tops of columns standing out from the earth suggested the wonder that lay beneath. The very name of Forum was forgotten, and so little was to be seen that, even at the beginning of the nineteenth century, Lord Byron wrote of one of the highest columns in the Forum to-day, and called it "the nameless column with the buried base."

# ROME COMING BACK TO SIGHT

But when men began to study the history of ancient times from the buildings left by ancient people, they quickly turned their attention to the remains of ancient Rome. Stroke by stroke they have carried on careful excavations. Four street-levels have been found, and the levels of the streets of ancient Rome lie sometimes twenty-four yards down, and never less than eight yards down, from the level of the streets to-day. Broken columns, ends of temples, beautiful porticoes, ruined halls, mosaic pavements, rostrums, altars, fountains, inscriptions, lines of broken statues, houses with three stories, steps leading down to cellars and up to churches, enormous walls of red brick stripped of the marble with which they had been faced, exquisite reliefs. triumphal arches—those great stretch across the vast space which begins at the base of the senators' huge palace and reaches to the arch erected by Titus after the destruction of Jerusalem, with the Colosseum and the Arch of Constantine in the background. Framing it on the right, high up like a ruin in the skies, is the palace of the Cæsars.

# HERE ONCE UPON A TIME

The traveler is bewildered as he stands amid this ruin and tries to picture what this place was once upon a time. Here in the Forum, in the days when emperors walked about among their people, were twenty-five acres of halls and temples and triumphal arches; 1,200 marble columns and 1,000 colossal statues; miles of porticoes, shops full of treasures, galleries full of great pictures; the Senate House and the Archives of the Empire of the World. And it was not a show, all this wonder; it was not only to look at, but to endure. It was a thing of beauty made to be a joy almost for ever. So well did they build, those Romans, that columns stand to-day in the streets

of Rome where they were set up 2,000 years ago. So well did they do everything to which they turned themselves, that the great drains out of the city are in use to-day, 2,000 years after they were made.

The mind simply cannot picture the Colosseum as it must have been, yet palaces and temples and tombs have been made of marble taken from this Twelve thousand captive single ruin. Iews are said to have been engaged in building this huge place, of which the outside walls alone cost twenty times as much money as St. Paul's. Three times round the outside walls is a mile, and the walls rose high enough towards the sky to hold twenty tiers of seats for 80,000 people, and in the midst of them, on a throne of ivory or gold, sat Cæsar. A thousand beasts were slain in this arena to keep an emperor's birthday, and how many death-cries have gone up from this place none can tell.

Once upon a time there were four hundred kinds of plants among the ruins, and the first seeds of many of them may have come from the cages of wild beasts brought from distant lands. It is a thrilling thing to pull a leaf or to pick a flower that is growing here, for we hold in our hand a living thing that may go back to a great day at the Colosseum, when hungry lions were let loose on the followers of Jesus and St. Paul to entertain an emperor on an ivory throne.

# THE CONQUERORS OF ROME UNDER

And while Rome lived in pomp and splendor in the sun, her conquerors were hiding underground. Down in the tombs were the persecuted Christians, driven to worship, and perhaps to live among the dead. Forty groups of catacombs have been found outside the gates of Rome, cut out sometimes five deep in the ground. The Romans would have laughed if somebody had said that these poor men hiding underground were founding an empire greater than their own.

The great wonder that has grown upon me is the wonder of the Two Empires. Think of the fact that at one time there were in Rome on the same day two such men as Nero and Paul. Nero lived in a golden house. Paul was in chains, in a humble dwelling where, perhaps, he taught Nero's slaves, or toiled at tentmaking so that he might buy bread to

### COLOSSEUM: TERRIBLE AS AND



THE TERRIBLE SIGHT IN THE COLOSSEUM IN THE TIME OF THE CÆSARS
This picture is from the painting by I. L. Gerome, and is published by permission of Messrs. Goupil & Co.



THE RUINS OF THE COLOSSEUM <del>~~~~~~~~~</del>5929 <del>~</del>

eat. Yet Nero's empire has gone—you can hardly find a fragment of Nero in Rome to-day. Paul's empire has come, and it endures for ever. Peter and Paul fill Rome to-day.

THE STILL SMALL VOICE THAT CON-QUERED ROME

Few things can interest the traveler more than to go from spot to spot and hear the still small voice. You could hardly hear it in Rome 1,800 years ago. Go down into the catacombs and realize that 1,800 years ago there were but a handful of Christians in Europe and that many of those who lived in Rome had to hide. They dared not build a church above ground, and so they excavated these catacombs where they might worship God in secret, and bury their dead, and even hide themselves in time of persecution. See their secret chapels, their graves, their paintings on the walls. Their leaders might be torn to pieces by lions in the Colosseum, but before the shouts of the populace had died away, the little bands of Christians met together in the catacombs to comfort one another.

We follow Paul and Peter everywhere; stand where they stood, go into the house where, perhaps, Paul wrote his letter to Philemon, see over the house of Pudens, wonderfully well preserved. We ride along the Appian Way, by which Paul came to Rome. We pass under the gate through which he walked to martyrdom, and follow his footsteps until we come to the church built over the place where

he was buried.

# THE JEWEL OF ROME

It is to me a wonder that I cannot express that here was a great civilization before Christianity, that Christianity came into the very heart of it and was crucified, that the civilization ceased to be, the greatest power in the world broke down, and the persecuted Christianity inherited its greatness, establishing its empire throughout the earth for all ages to come, so that to-day, when the Cæsars are so dead that men store coal in their palaces and drink liquor in their tombs, the great glory of Rome is the tomb of a fisherman whom Nero crucified.

For St. Peter's is the jewel of Rome. We should be careful in calling a thing sublime, but St. Peter's is sublime. Out of a long, mean street, we emerge into the vast square, where George Eliot felt

that nothing small or mean could come. Everybody knows the picture of it, with a tall pillar which supports a cross in the centre of the plaza, and the half-circle of high columns leading to the ends the facade, about 150 yards in front of you. There are hundreds of these columns in four lines, and through the middle avenue a carriage and pair can pass. Fach front column has a statue on the top. The vestibule is approached by a flight of broad steps. Pulling back the heavy leathern curtain which hangs before the great door, we enter the sacred place.

I wish I were able to tell you how vast and beautiful it is. It is twice as large as St. Paul's in London, and it is *light* everywhere. As you walk slowly towards the tomb of St. Peter, under the central dome, the beauty of the place grows upon you and becomes a dream; you lose the world of sense, and live as in

a vision.

Perhaps there is no dome like this anywhere. You feel that it is higher and wider than any other dome that has ever been built. It is as light as it can be, and its simple decorations—probably eighty pictures on a soft gold ground in slanting panels—can be clearly seen.

Four huge pillars hold up the dome, and around the church are a dozen other domes, over a dozen chapels, all larger than the average church we see, and unspeakably more lovely. There is not a chair in St. Peter's, I think, only a wooden seat or two here and there, and

the great marble floor is free.

And as you wander in this great place, which seems to grow more spacious and more lovely as you walk about it, you come to feel that it is one of the world's master-places. I cannot describe the effect of walking up and down the aisles, in and out of the chapels, across the transept and back again under the great dome. I have walked round and round St. Peter's with my eyes fixed on its vaulted roof, lost in wonder. As one dome passes out of sight and another comes into view, as the rich gold of the great arches strikes the eye, as the great mosaics and frescoes come—one of them represents nine men's work for ten years. ninety years of human labor—as the white marble tombs loom before you, while the great silence of the place grows upon you all the while, you are overwhelmed, in spite of Byron's saying, that

# CHRISTIANITY'S HOME IN ROME, THEN AND NOW



The central home of Christianity in Cæsar's time: a funeral service in the Catacombs.



The central home of Christianity in Rome to-day; inside St. Peter's.

# A GREAT DAY IN THE ROMAN FORUM DURING THE LIFETIME OF JESUS



If Jesus could have gone to Rome during his lifetime on earth, as Paul and Peter did afterwards, this is the kind of scene he might have witnessed in the Forum, painted here While Jesus was talking quietly to the people in the villages of Palestine, laying the foundations of the empire that was to cover the earth, the Emperors of Rome were living in glory and power, not dreaming that their empire was to pass away, conquered and transformed by the teaching of Jesus of Nazareth. by Professor Prospero Platti.

as you enter St. Peter's your mind grows colossal with the place, and therefore you are not overwhelmed.

# THE TREASURE-HOUSE OF THE WORLD

Yet this marvelous place is only a part of a place; it is only one part of the Vatican, the greatest building in the world to-day. It is the wonder-house of the world, full of priceless treasures, vet it stands not alone in its glory, but here in Rome among a thousand wonders. It is the greatest palace and the greatest church on the face of the earth. It is said to have a thousand halls and chapels and apartments, and over one ceiling alone Michael Angelo gave up four hard-working years of his life. Whether this roof, or a roof that Raphael painted, is the greatest thing in art is an endless controversy among those who understand these things; but the Vatican will not be jealous whichever way the problem is decided, for both these roofs are here within its walls.

Here is a gallery of pictures which no money in the world could buy; here are miles of sculptures which almost speak aloud of the world that was for centuries before a Parliament sat at Westminster. Here is Augustus, the mail-clad ruler of the world, who found Rome brick and left it marble; he who ordered the census which took Mary to Bethlehem and made a manger sacred and immortal as the birthplace of an empire compared with which the empire of Rome was like a home of ants. Here he stands, this splendid Cæsar, seeming, as somebody has said, as if he were speaking those words which Virgil wrote of him: "Din of arms shall cease, and days of hardship shall be softened." Here, too, is Demosthenes, chiseled by a man who knew him, his face caught at the moment when he is trying to catch the ear of a frivolous crowd by warning them of a danger to Athens, and we seem to hear him crying, "Oh, Athenians, my countrymen, when I talk to you of political dangers you will not listen, and yet you crowd about me to hear a silly story about an ass."

Here is the famous Laocoon, that terrible group of a father and his sons in the coils of a snake; one of the very greatest sculptures in the world, which stood in the palace of Titus, the conqueror of Jerusalem, who came back to Rome and set up a beautiful arch,

on which is seen to-day a picture of the Temple swaying in its fall.

Through the heart of the town runs the famous Corso, the great avenue of Rome. At one end of it is the convent. where Luther stayed on that visit to Rome which changed his views, and sent him out into the world to start the Reformation. Not far away sleeps the man who perhaps may have kept the Reformation out of Italy, Ignatius Loyola, who took a little band of men into a chapel in Paris and swore them to be faithful, and founded the Order of Jesuits. A little distance off sleeps Fra Angelico, whose pictures travelers love to see, and beneath the altar of that same church, with the lights that never go out shining in the dimness, is the figure of a woman in a tomb with a glass front and two lamps burning in it. She is Catherine of Siena, remembered both for her life and her writings.

# THE MYSTERY OF THE ETERNAL CITY

And so on for ever-for it is not possible even to mention here a thousand things that travelers come to Rome to You must come to see them. You will wonder at the narrow, unpaved streets made of lava-stone; at the confusion of men and horses mixed up everywhere. You will wonder at the sound of running water in the streets, especially at night, when the trickling of the fountains is weird and odd. You will wonder at the frescoes on the walls of the houses, sometimes illuminated at night by electric lamps; and if you are passing a great house in the dark you will be startled, perhaps by the appearance of white figures seeming to step out into space from niches in the wall. You will start back at the sight of living wolves close to you on the Forum steps. It is part of the mystery of the Eternal City, the spirit of the Colosseum, the memory of the Forum, the something that creeps out of Caligula's palace at night and fills the air with the terror of the Past.

And, once you come to Rome, there will come into your life something that will never leave it until life ends, and you will want to come to Rome again and again and again, to feel yourself a far-off looker-on, through the veil of centuries, at the greatest pageant that Father Time has ever seen.

CONTINUED ON PAGE 6041.

### MEETINGS A KING COULD



"THE MEETING-HOUSE." FROM THE PAINTING BY FRANK CRAIG



GEORGE FOX, THE FOUNDER OF THE QUAKERS, PREACHING IN A TAVERN The Quakers were bitterly persecuted when they began to hold meetings, and Charles II. tried to stop them. But the meetings went on, and the sect spread over England, and later into parts of our country. 

# The Book of MEN & WOMEN



Swarthmore Hall, near Ulverstone, the home of Margaret Fell.

# MARGARET FELL, THE QUAKER

SW Carrier SW

IT was a winter's CONTINUED FROM 5855
1652. Across the sands of Morecambe Bay the figure of a man on horseback could be seen, coming from the direction of Lancaster, England.

The rider was Judge Fell, returning from his duties as judge on the North Wales circuit, and making for his home at Swarthmore Hall, near Ulverstone. As he drew nearer, parties of gentlemen went out over the sands to meet him. They had news to tell him. In his absence a religious teacher of extraordinary power had been visiting his house, and holding meetings there; his wife and family were all "bewitched" by the stranger.

THE CONTRACTOR OF THE PARTY OF

Somewhat alarmed, and greatly annoyed, the judge hastened to his home. Then he found out what had happened. The extraordinary visitor proved to be George Fox, the founder of the Quakers. Arriving at the Hall in the absence of the judge, he had been hospitably entertained by the judge's wife, Margaret Fell, one of the most delightful characters in history. He held meetings at the Hall, and the mistress herself, and many of her household, were "convinced of the truth," as preached by him. It was therefore with some trembling that she looked forward to her husband's return.

"Any may think,"
she says, "what a condition I was like to be in, that either I might displease my husband or offend God." But she was of the stock of the martyrs, being descended from

Anne Askew, who was burned at the stake in 1546. At all costs she would hold to her convictions.

The judge, however, was a broadminded man, full of common-sense. As he talked with George Fox and his Quaker companions he became impressed with their reasonableness and honesty of purpose, and his irritation passed away. On the following morning the minister of Ulverstone came to warn him against these dreadful Quakers, who were "turning the country upside down," but the judge sent him away, and hearing that there was a difficulty in finding a place for holding meetings in the neighborhood, promptly said to George Fox: "You may meet here."

From that time forward Swarthmore became the center of Quakerism in the North of England. It was a home for all the traveling preachers, to which they could repair in the short periods they were out of prison. Margaret Fell became "the mother of Quakerism." The judge himself never became a Quaker; but though

he remained a strong Churchman to the end, he extended his sympathies and help to the persecuted sect. What an interesting sight it must have been—the Quakers holding their asssembly in one room, and the judge sitting quietly listening in the room across the hall with the door ajar! In one room mother and children were

worshipping the rest; in the other the father, and head of the household, was sitting alone.

Thus six years passed, husband and wife being rather united than divided by the new experience, until in 1658—one month after the death of Cromwell-Judge Fell died. By his

death his wife lost not only a "tender husband" but a powerful protector. The Quakers, too, now that Charles II. had come to the throne, began to suffer terribly. George Fox was arrested at Swarthmore and flung into Lancaster Gaol. Then Margaret Fell went up to London to plead before the king for his

release, and that of all imprisoned Quakers. Standing calm and unmoved amid the sneers of the Court, she pressed her suit upon the king, and after a time she was successful, but still fiercer persecution followed. At one time thousands of Quakers were held in prison, and during the dreadful plague of London

many of them died in the overcrowded jails. Margaret Fell herself was not to go unscathed. On her return to Swarthmore she was arrested, and charged with holding religious meetings in her house. Would she promise to give them up? No. Not if she were to be instantly set free on doing so? No. If she refused, the punishment would be terrible -forfeiture of all her property, and imprisonment for life. No matter. "I must offer my life, my all, if it be required of me." They gave her three months to think it over, but her purpose never wavered. And so she was sentenced to lose all her belongings, and to be im-

prisoned for life. As she left the court she said. in calm and resonant tones: "Although I am out of the king's protection, I am not out of the protection of Almighty God."

Although her property was de-clared a forfeit, it was not given to anyone else, and afterward the decree

against it was removed so that it became her own again.

For four and a half years she languished in Lancaster Castle, in a place—as she wrote to the king—"where storm, wind, and rain enter, and which is sometimes filled with smoke, so that it is much that I am alive, but that the power and

goodnesss of God hath been with me."

At the close of that period the efforts of her friends procured her release, and immediately set out on a tour of inspection of the prisons of England. So bitterly had she suffered during her own imprisonment that she resolved to do all in her power

to improve the condition of other prisoners. She was a prison-reformer before Elizabeth Fry. As she traveled about she came to Bristol, and here, in 1669, occurred one of the great events of her life. She married George Fox! Let George Fox tell the story of this in his own quaint words:

"I had seen from the Lord, a con-



Where Margaret Fell used to worship, The Friends' Meeting House at Ulverstone.



Lancaster Castle. Where Margaret Fell was imprisoned for holding services.

siderable time before," he wrote, "that I should take Margaret Fell to be my wife, and when I first mentioned it to her she felt the answer of approval from God thereto. So after I had acquainted her children with it, our intention of marriage was laid before Friends, to their full satisfaction. Afterwards a meeting being appointed on purpose for the accomplishing thereof, in the public meeting-house at Broadmead, in Bristol, we took each other in marriage, the Lord joining us together." The bride was now fifty-five years of age. After only a week's "honeymoon" they parted, she going back to her work in the north, he to his travels and still further imprisonments.

Margaret Fell's daughters welcomed George Fox as a new father, but her only

son, who had not become a Quaker, disliked the marriage. He was very disagreeable about it, and tried to compel her to give up Swarthmore.

For six years Margaret Fox and her husband saw little of each other. She was made to suffer a second imprisonment in Lan-

caster Castle which lasted over a year, and during that time her husband had a severe illness. After her release she joined him near London, and stayed with him until his departure on a missionary tour. He was absent for some time in Barbadoes, the West Indies, and on this Continent, and was imprisoned at Worcester soon after his return. But in 1675 he was released, and came to Swarthmore, where he staved for two years. These were happy, peaceful years.

George Fox was soon off to Holland and the Continent. Persecution broke out again—for the last time—and the patient mistress of Swarthmore was once more a sufferer. She was fined for speaking at a meeting in her own house, and when she refused to pay they took thirty head of cattle from her. them to be kind to the poor beasts, Edward," was all she said to her bailiff. And then, turning to those about her, 

she added: "We must take cheerfully the spoiling of our goods, for we have in heaven a better and an enduring substance."

Not long after, in 1691, George Fox died, worn out with hardship and imprisonment. She was not with him at the end. He died in London, while she was at Swarthmore. He had lived to see his work established, and the day of persecution past. In his letter to Margaret Fox, telling her of her husband's death, William Penn spoke of his friend as "a prince indeed," and another friend said that he lay as if he had only fallen asleep. As for her who had shared so much of his lot, through good days and through bad, she survived him by twelve years. She died on April 23, 1702, in the eighty-eighth year of her age. Her last

words were, "I am in peace."

They laid her to restamonghernative hills, in a small green enclosure, not far from Morecambe Bay, that belongs to the meeting-house which George Fox presented to the congregation of Friends at Swarthmore. No headstone or monument marks



The College of the Society of Friends.

her grave. She needs none. She lives enshrined in the hearts of thousands today, men and women to whom the world is a fairer and brighter place because she has lived. Her name is held in high honor in the Quaker community. When the Friends built a college in Pennsylvania, they decided to name it in her honor, and many students have learned to love and revere her memory at Swarthmore College in the Pennsylvania hills.

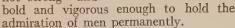
No portrait of Margaret Fell exists, but we are told that though she was not beautiful, she had a pleasant face, which showed the sweetness of her thoughts. She had a strong, kindly nature, full of the charity that thinks no ill, and in spite of many duties, she could always find time to take trouble for others. This clever woman was well educated for her day. She wrote many books, but they were meant to aid in the spread of Quakerism, and are now interesting only to members of that faith, and to students.

### MRS. HEMANS.

YOUNG people may rightly claim Mrs. Hemans as their very own poet. She is not one of the greatest poets, but she is sure of immortality; her poems will be spoken and sung, we all believe, as long as the English language endures-and

why? Because the children of all ages love her and her poetry.

In her day, she was one of the most popular poets in the world, but her popularity waned, as it was bound to wane, because her work was not strong and



Scott explained the reason; to him it seemed, he said, that her poetry, much as he admired it, contained too many flowers and not enough fruit. It was pretty, musical, correct, abounding in tenderness and high religious thought, but it lacked depth and strength. Men tired of it as they tire of a sweet little song, as children tire of sweets and confectionery.

But the children have not tired of Mrs. Hemans. To them she remains a perfect heroine, and a sweet, beloved singer. The children's books contain many of her poems, as they always should, and it is because the children love her and her poems that her immortality is assured. It is right that children should love her and her work, for she dearly loved children. Had she not so loved children she might have been a greater poet. She poured out her poems that she might have money with which to feed and clothe and educate her five little boys, and her work killed her. Had she written less, she would have been able to write better. Still, as it is, she has left us songs and poems which children love and keep alive.

Felicia Dorothea Hemans was born at Liverpool on September 25, 1793. Her father, George Browne, was at one time a prosperous merchant, but misfortune overtook him, and he had to give up business and go to live at Gwrych, in North Wales. There Felicia grew up with her six brothers and sisters in surroundings of natural beauty, which inspired her with the poetic passion. She early began to write verse, and her parents were so unwise as to publish a little volume of the poems which she had written before The work was badly she was fourteen.

treated by the critics, but Shelley, the great poet, saw the poems, and hearing that their young author was a girl of great beauty—as indeed she was—he desired her to correspond with him. This Felicia's

THE WELSH HOME OF MRS. HEMANS, NEAR ST. ASAPH parents would not permit, and the girl gave her thoughts to better poetry, and published the same year, 1808, poems of far higher level.

> She read a great deal, and the wars of the period, in which two of her brothers were gallantly fighting, filled her young soul with patriotic ardor. Hence, when a dashing young Irish captain, named Hemans, came along to quiet little Gwrych, Felicia fell in love with him. He went off to the wars with her brothers, and to her he seemed a hero. In 1812 Captain Hemans returned and married the beautiful young poet, who was then only nineteen years of age. They had five little sons, and then, in 1818, the captain went off to Italy, leaving his girl-bride with five baby boys to maintain. She never saw her husband again. He lived in Italy for a time at least, and about ten years afterward the two elder boys went to live with him in Rome. Up to that time she was left with five small boys to maintain, and all their support had to come from her busy pen.

> The brave young mother did not flinch from her task. She set herself to support her little family on the money that she earned by her poetry. She won a £50 prize for the best poem on the meeting of Bruce and Wallace, and three years later she gained a prize for the best poem on the subject of Dartmoor. She worked very hard, writing books and poems and articles for papers and magazines. Her fame became widespread throughout Great Britain and in America. Her fame

in America was helped by her poem on the landing in America of the courageous men who were the first to leave England to worship God after their own con-The fine impressive poem sciences. begins:

> The breaking waves dashed high On a stern and rock-bound coast.

Multitudes of people used to assemble to sing the stirring words on the very spot at which the Pilgrim Fathers left their ship and first set foot on American soil. But Mrs. Hemans never saw the spot, and did not know what the scenery was like. One day an American admirer of the poem called to see her in her home near Windermere, and told her how highly the poem was regarded in this country. She asked him to describe the exact scene of the landing. He had to confess that the coast is not "stern and rock-bound," but flat and free from danger. She was so grieved to think that she had given a wrong description of the scene that she burst into tears of shame. and could not be comforted.

We have traced her to Lake Windermere. It was to a pretty little cottage overlooking the lake that she retired

leaving after Liverpool, whither she had gone from Wales. She went there for peace and quiet, and to work amid the beauties of the neighborhood to which Wordsworth had introduced her. But peace and quiet were not for her. Crowds of vulgar tourists found her out, and haunted her house, and, by begging for her autograph and other keepsakes, made her life misery. It was here that she found that the strain of maintaining her family

was breaking her health. She was too proud to tell her friends how hard and how killing the struggle was, and she worked on until her constitution was ruined. She knew that she was killing herself by overwork; she knew also that she would never be able to give herself time and peace of mind to write the great poem upon which she desired that her fame in after years might rest. She went with her children to Dublin, to be near a beloved brother and his wife, but still the struggle for the children's welfare had to continue. 

She had many sorrows. Her husband had disappeared, her parents were dead, and death claimed several of her brothers and sisters, as she tells us in that mournful poem, "The Graves of a Household." But she toiled on, cheerfully, ungrudgingly, writing, in order to live, poems upon a variety of subjects, which the children of the world have since refused to What child has not felt his heart beat and his eves moisten as he has recited "The Child's First Grief"?

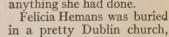
O call my brother back to me. I cannot play alone!

The summer comes with flower and bee-Where is my brother gone?

A still more famous poem of hers "Casabianca," known and recited throughout the English-speaking world.

She loved her home dearly, the home which she strove so bravely to keep for her little ones, and we can tell that it is from her heart that there came the famous poem, "The Stately Homes of England." Another of her compositions which every child knows is, "He Never Smiled Again. It is safe to say that twenty or thirty of Felicia Hemans' poems will be found scattered through the most popular books

of recitations of to-day. That is a great thing to be able to state of the work of a woman like Mrs. Hemans. She was only forty-one when she died. She caught cold while sitting in a Dublin garden, and she was so weak from her heavy work that she wasted away and died-May 16, 1835—in the very prime of life, while she was still capable of finer work than anything she had done.



and her friends chose for her epitaph some beautiful lines which she herself had written. They are these:

Calm on the bosom of thy God, Fair spirit! rest thee now! Even while with us thy footsteps trod, His seal was on thy brow. Dust to its narrow house beneath! Soul to its place on high! They that have seen thy look in death, No more may fear to die.

Seldom has a poet's epitaph been more fittingly written by that poet's own hand. THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 6020.



MRS. HEMANS

### PROGRESS IN A NEW COUNTRY



The Provincial Parliament Building at Edmonton.



These pictures give us a good idea of the growth of the Canadian Northwest provinces. In 1882, when the Territory of Alberta was set aside, the site of Calgary was prairie. It now has a population of over 80,000, and the business streets are lined with handsome buildings, such as you see in the lower picture. The Territory was made a province in 1905. The Provincial Parliament Building at Edmonton, the capital of the province, is built on the site of the old Hudson Bay Trading Post, which was established in 1789. 

### The Book of CANADA

### WHAT THIS STORY TELLS US

CANADA has drawn immigrants from almost every country in the world. They have come from Europe, from Asia, and from the United States. Every year many prosperous citizens of the United States sell all their goods and move to Canada, where they can get good land almost for the asking. A majority of the immigrants go to the West, which is developing so rapidly. Though it is growing rapidly, the population is still small compared with the area, and it can support a much larger number. You will also learn below of the coming of the Chinese, Japanese, Hindus, and the queer people known as the Doukhobors.

### THE CANADIAN IMMIGRANT

Canada had endeavored to attract settlers to develop the wonderful resources of the country. Notwithstanding these efforts many of the immigrants simply stopped on their way to the United States. Not only was Canada not holding the immigrants, it was also losing its native born population. In 1896, a new policy was adopted and an active campaign was started for attracting attention to the Dominion in general and to the Northwest in particular.

THE ADVERTISING CAMPAIGN BY THE CANADIAN GOVERNMENT

The Canadian government began to advertise in Europe and in the United States. Every means possible was adopted to draw attention to the opportunity for settlement in Canada. Immigration agencies were established in the British Isles, in many countries of Europe and in the United The greatest activity was shown in Great Britain, where thousands of dollars were spent. Literature setting forth the great resources of Canada was mailed to all agricultural laborers in the United Kingdom. Well-mounted maps of Canada were presented to every school in the British Isles. Medals were offered in five hundred schools for best essays on Canada, and an Atlas of Canada was presented to the children. Lectures illustrated with Canadian views were given throughout the agricultural districts. Specially constructed busses Copyright, 1912, 1918, by M. Perry Mills.

filled with collections of Canadian products in charge of capable men made tours throughout the country. Advertisements were inserted in the papers read by the farming classes. In the United States, agencies were blished in many of the leading

established in many of the leading cities. Thousands of pamphlets dealing with the resources of Canada were mailed to desirable immigrants. Advertisements were inserted in thousands of American newspapers. Liberal bonuses were given for obtaining immigrants. No country in the world's history ever carried on a more energetic and a more systematic campaign for obtaining desirable settlers. These efforts are still being made.

WHAT IS MEANT BY "HOMESTEAD LANDS"

The government has pursued a very generous policy in the granting of public lands. Any person who is the sole head of a family, or any male over eighteen years of age may homestead a quarter section of one hundred and sixty acres of available Dominion land in Manitoba, Saskatchewan or Alberta. By the payment of a fee of ten dollars at the time application for homestead entry is made and with six months' residence and cultivation of the land in each of three succeeding years, a deed may be obtained from the Dominion government.

THE UNDESIRABLE

The aim of Canada has been to introduce farmers, agricultural laborers

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and others who would not compete with those engaged in the skilled trades. A large number of the immigrants from Great Britain had come from the cities. Many of these were not fitted to engage in farm labor; in addition many preferred to settle in the cities. The attraction of this class was due to Canada's vigorous advertising campaign, to the activity of societies, and to the eagerness of steamship agents to get traffic. The Canadian officials made complaints of this practice which for some time prevailed in England. For example, the Metropolitan Aid Society aided many criminals to go to Canada, with a view to giving them the chance of a fresh start.

Many philanthropic societies have assisted in landing thousands of penniless immigrants on Canadian shores. British Welcome League of Toronto between March and November, 1907, assisted 5,200 immigrants, of whom seventy-eight per cent. were either penniless or on the borderland. The coming of city-dwellers brought up questions concerning the quality of immigration. As a result of several investigations a revision was made in the laws and they are enforced with greater rigidity. The aim is to debar all those not suited to Canadian conditions.

### THE IMMIGRATION LAW KEEPS OUT MANY

The law says that those who are feeble-minded or insane shall not land. Nor does it allow the deaf, dumb, blind or cripples to come in unless they belong to families which are able to take care of them. Those who have certain diseases are also shut out, and a strong effort is also made to keep out all whose moral character is not good. Any one who commits a crime within two years after coming to Canada may be sent out of the country. Some of these points seem very hard, but Canada feels that she must protect herself.

Each immigrant, male or female, must have twenty-five dollars besides a ticket or else money enough to buy a ticket to the place he intends to go. The head of the family must have twenty-five dollars over and above money enough to buy a ticket for each member of the family to the place where they are going, and also twelve dollars and fifty cents for each child over five and under eighteen years. Between the first of Novem-

ber and the first of March these sums are doubled. This rule is not strictly enforced if the immigrant is alone, is strong and healthy and has the promise of a position, or when he or she is going to join a relative already settled in Can-ada. Railway "navvies," farm laborers, and domestic servants need not have any money. The immigrants to Canada have been of many different nationalities and colors. Europeans from almost every country, Asiatics and Americans have all poured into the new country, and there has been some race-feeling.

### THE CHINESE IMMIGRANTS ARE HEAVILY TAXED

The Chinese began to come to British Columbia about 1858, but it was not until the late seventies that any organized opposition to their entry was made. Several laws against them were passed by the government of British Columbia, but they were declared unconstitutional. Finally the matter was taken up by the Dominion government and, in 1885, an entrance tax of fifty dollars was imposed. This did not end the complaints, and petitions were yearly sent to the Federal government urging further restriction. In 1900 the tax was increased to one hundred dollars and three years later to five hundred. One half of the tax is paid to British Columbia.

### THE JAPANESE COME TO CANADA

The coming of the Japanese dates from about 1896. While the Chinese do not compete, to any extent, with skilled white labor, there is some competition in the case of the Japanese. The Japanese are quick to learn English and show more readiness than the Chinese to become naturalized. At the time of taking the last census, there were nine thousand Japanese in British Columbia, of whom more than one-third were naturalized British subjects. In opening up the Pacific coast the sturdy little brown men have worked on the fishing grounds, in the sawmills, in the logging camps and on the farms. Nearly one half of the fishermen belong to this race. Under the treaty of 1905 between Canada and Japan, the subjects of either country were granted full rights of entry into the territories of the other. At the same time, there was an understanding that Japan would regulate the number of Japanese laborers coming into Canada. 

### Y AND THE GROWTH OF WONDERFUL CANADIAN WEST THE



The scenery in the mountains of Western Canada compares in beauty and grandeur O with that in Switzerland and some people think it has greater beauty than the Swiss W mountains have. This is Upper Bow Valley, from Tunnel Mountain at Banff in wi Alberta. There are thousands of views among the Canadian Rockies equally beauti- pa ful and impressive, as you will see on pages elsewhere in the book.

Pictures copyright, 1906, by H. C. White Co.

On another page we show another view of Winnipeg, the magic city of Manitoba.

Winnipeg is a distributing centre of immigrants, and the chief market place for a wide region, now rapidly filling with farmers, many of whom are from the Western part of the United States. Some of the inhabitants of this large city have seen its growth from a small village. As late as 1870 it was a Hudson's Bay Company post.

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The Japanese government has kept its word, and very few now come to Canada.

THE HINDUS ARE NOT WELCOMED IN CANADA

The Hindus began coming to British Columbia about 1904. With the coming of twenty-two hundred in 1907 some ill-feeling arose. The sudden increase was due to the distribution through certain rural districts of India of glowing accounts of the wages paid in British Columbia, and to certain steamship agents who wished to make profit on tickets sold. The matter was taken up with the British government. No contract laborers from India are now allowed to enter Canada. All immigrants must have made a continuous journey from the country of origin. All Asiatic immigrants must possess on landing at least two hundred and fifty dollars, but this does not apply to visitors with passports.

THE DOUKHOBORS, A RUSSIAN SECT IN CANADA

A number of ignorant Russian peasants came to Western Canada during the winter and spring of 1899, in order that they might be allowed to follow their own religious beliefs. Three years later they attracted world-wide attention by a famous pilgrimage that they attempted to make. They came under the influence of fanatics who preached that they should give up labor and all their goods and go forth like Christ and preach the Gospel. They handed over their money to the nearest government agent, cattle and horses were allowed to go free, but were rounded up and taken in charge by the mounted police. They cut the metal hooks and eyes from their clothes, set everything in order in their homes, and started on a pilgrimage which soon reached proportions that alarmed the authorities. The government took stern measures and the motely crowd was brought back to their homes. At this time, Peter Verigin, their leader, who had completed a term of exile in Siberia. reached Canada. Under his leadership, order was soon restored and since that time the people have remained quietly on the land.

Everything is held in common. They live in villages of one to two hundred people, and there are nearly fifty of these. In the villages, each cottage is surrounded by a garden. A large communal barn is for the farming implements, while one or two large stables furnish shelter for the horses, cattle, sheep and pigs. All work in the fields. The working day is from five o'clock in the morning until eight in the evening. The time is divided into three shifts of five hours each. One set of men and horses go to work at five and stop at ten for five hours' rest. A new shift works from ten till three, when the first resumes work.

The leader is the active manager of the Doukhobors. He is the custodian of the fund, to which each man, woman and child contributes his or her earnings. He sells the products and buys at wholesale the goods needed. Two men and one woman delegate are sent from each village to the general meeting. This meeting is opened with the Lord's Prayer and closed with the singing of Psalms. This meeting looks carefully after money matters and discusses any business which may come up.

During the summer of 1899, for the want of horses, women took their place and drew the ploughs. Religious societies assisted them through the winter and the government furnished the seed for the first crop. See what they did in a little more than ten years. In 1911, when the last census was taken, they had horses. cattle and sheep in great numbers. They owned steam-ploughs, twenty-five steamthreshing outfits, grist-mills, sawmills, blacksmith and carpenter shops and grain elevators. In that year they raised over a million and a half bushels of wheat. oats, barley and flax.

THE IMMIGRANT FROM THE UNITED STATES TO CANADA

The American in Canada can scarcely be called an immigrant; he is rather a solid citizen. He considers that Western Canada offers him better opportunities than his own state, so he comes with all of his possessions. Canadians and Americans alike pass from one citizenship to another with far less friction than an Englishman can be transplanted to Canadian or American soil. Since the first movement toward Canada began about 1898, it has gone forward with a rush. During the year ending March, 1912, nearly forty per cent. of the entire immigration into Canada came from the United States. Every state in the Union was represented in the rush to the fertile wheat lands of the North. The average amount 

### THE HAPPY LIFE OF THE ROLLING PRAIRIE



A FAMILY ARRIVING ON THE PRAIRIE TO SET UP A HOMESTEAD



NEW SETTLERS AT WORK, TRANSFORMING WILDERNESS INTO A FRUITFUL GARDEN



A FARM ON THE PRAIRIE AFTER SETTLERS HAVE WORKED UPON IT FOR TWO YEARS The rolling prairie of Western Canada has vast hoards of wealth hidden in its fertile soil, and as the land becomes more and more cultivated this wealth will be realized in huge crops of wheat and fruit. These pictures are published by the courtesy of Canada, a weekly newspaper published in London.

of wealth for every man, woman and child was over eleven hundred dollars. From 1901 to 1912, 734,000 Americans, bringing with them over half a billion dollars in gold and effects, had sought homes in Canada. After that year immigration from the United States fell off a little, but it is still large, and by the end of March, 1920, over 1,300,000 Americans had come to live in Canada. The farmers in Western United States sell their land for a high price, and move across the line, where they can get land as good very cheap, if indeed they have to pay for it at all. The Canadians welcome the Americans, who soon adapt themselves to their new surroundings and become good Canadian citizens. These families are, however, a great loss to the United States.

An interesting point in Canadian immigration is the number of child immigrants. Friendless children are carefully trained in orphanages in England, and are brought over at the age, generally, of from five to fourteen. Older children, especially boys, are also brought over, though in fewer numbers. Usually the younger children are adopted into Canadian homes, and the children over fourteen are generally sent to work for farmers. The orphanages have headquarters, called "Homes," in Canada, where the children live until they become used to the country. The wages for which they work are fixed for them by the Homes, and visitors regularly inquire after the welfare of all the children.

### WHERE THE IMMIGRANTS COME FROM

Up to the year ending March, 1914, three out of every four immigrants spoke the English language, and came from the British Isles or the United States. Since that time the proportion is larger, as immigrants from countries hostile during the war are excluded.

Nevertheless, in the immigration to Canada fifty-four nationalities are represented. The Chinese are found in every province, while few Japanese come east of Winnipeg. The Hindus are rarely seen beyond British Columbia and Alberta. Greeks, Italians and Russian Jews flock to the large towns and cities. Thousands of Galicians are unskilled laborers in the western provinces. Mormons, Swiss, French, Icelanders, Swedes, Doukhobors, Germans, Norwegians, Danes, Finns and the English races, in-

cluding the American, form the farming classes of the western prairies.

Before the close of the year ending in March, 1914, immigrants from Russia, and parts of Austria inhabited by Slavs, and Italy increased in numbers. The Italians were attracted by work offered them on the railways, but many of them went back to Italy for the winter months.

### WINNIPEG, THE MELTING

With the one exception of Johannesburg, Winnipeg is said to hear more languages spoken on its streets than any other city in the world. The city is the great distributing centre for immigrants. Near the Canadian Pacific Railroad station is the Immigration Reception Hall, big enough to provide temporary sleeping room and housekeeping facilities for one thousand people. The Bible may be purchased in sixty distinct tongues, and more than thirty languages are spoken on the streets of the city. With excellent day and evening schools, Winnipeg is performing a valuable service in making Canadian citizens out of these strangers.

### THE IMMIGRATION POLICY

Canada has great areas of unoccupied rich fertile plains, and one of the chief aims of her immigration policy is to get suitable settlers for these lands, and to get farm and railroad laborers, and the always needed domestic servants. On the other hand the coming of those who will not make desirable citizens is discouraged, and if necessary those who are undesirable are sent home again. Only those races that will adapt themselves to Canadian conditions are encouraged to come to Canada. Unlike the United States, Canada has no contract labor On the contrary the evidences of assured employment upon landing count heavily in favor of admission and sometimes will serve as the only basis.

The Canadian law is very flexible. The power conferred on the Governor-General-in-Council is so great that it would be possible through special orders to cut off not only any particular class of immigration but to stop immigration altogether. No country in the world has exercised greater care in the selection of her immigrants and no country has met with greater success in the work.

THE NEXT STORY OF CANADA IS ON PAGE 6001.

### HOW THE TOUGH SOD IS BROKEN



Much of the prairie land in Western Canada has never been ploughed. The roots of the grass and weeds are so matted together that a plough drawn by one or even two horses would be of little service. Here we see six ploughs drawn by an engine. They easily tear apart the stubborn sod, and bury the grass and weeds. This freshly cultivated land bears very large crops of grain.



This is a disc plough. The two discs shown in the picture are strong metal plates fastened at an angle. As they revolve they exert immense force and serve the same purpose as the plough shown above, though of course they do not do so much work. Notice the number of horses that are needed to draw the plough.

### AN EXCITING MOOSE HUNT



These pictures of an exciting and unusual moose hunt were taken in Quetico National Park, in Western Ontario. Two men who were on the lake, in a canoe, sighted a moose which was swimming across the lake.



They gave chase, and as they came up with their quarry, one of the hunters sprang overboard. This in itself was a daring thing to do, because, as you know, a canoe is a very easy boat to upset.



As you see, however, the feat was so skilfully done, that the man landed on the back of the moose, and rode the astonished animal triumphantly to land, through the cold water of the lake. The "velvet" on the horns of the moose shows that the pictures were taken in spring, before the horns had become hard.

The Book of GOLDEN DEEDS



THE SANITARIUM AT SARANAC LAKE

### THE BELOVED PHYSICIAN

T was cold but very CONTINUED FROM 5709 CONTINUED FROM 5709 beautiful and quiet in the deep that afternoon. mountains covered with unbroken forest rose steeply from the river, and at their base the valley swept out of sight in gracious waves. A hunter, clad in well-worn corduroys, thick leather boots and a fur cap, had fallen asleep leaning on his gun as he waited for a fox. As he slept he dreamed. Instead of the fox runway where he stood, he saw the forest melt away, and the whole mountain-side became covered with curiously built houses. As he gazed intently upon them the man saw that they were built inside out, as if the inhabitants lived on the outside.

To-day, if you stood on the spot where the hunter waited through the cold mid-winter afternoon, you would see that his dream has come true. Dotted over the mountain-side are over thirty small buildings, all of them hemmed with porches greater than themselves. Sidewalks and roads run from point to point in the little colony. In the summer, instead of tracks of unbroken forest, green lawns and flower-beds meet the eye.

Who is it that in so little time has worked this great transformation? None other than the hunter, himself, Dr. Edward Livingstone Trudeau,

called by his friends,
"the beloved physician." When he fell
asleep over his gun that cold

winter day he was not merely a

weary sportsman, waiting for a wily fox—he was also a very sick man, who had come to the Adirondacks merely to spend his last days amid surroundings which he loved. He had nursed a brother who had died from tuberculosis, and because so little was known in those days about the disease, Dr. Trudeau had exposed himself to unnecessary risks and so contracted the illness. He was only twenty-five years old, at the beginning of a promising medical career, and happily married, when the blow fell. After some months' stav on Saranac Lake at the headquarters of the famous guide, Paul Smith, Dr. Trudeau gained so much benefit from the beautiful air and restful woods, that he returned a second time. This treatment of open air and rest is one that is usually followed now, but in those days it was a new thing. If the patients were ill enough, they were kept in bed, and all fresh air carefully excluded, or if they were well enough to be about, violent exercise such as horseback riding was often prescribed. The second summer, Dr. Trudeau, against advice, decided to remain on through the severe winter, although

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Paul Smith's was then sixty miles from a doctor or a railroad, and entirely cut off from all connection with the outside world.

The Adirondacks were a real hunter's paradise and every day the doctor followed his favorite sport, which was quite possible without going far from the house. His wife and two children joined him, and the doctor so improved that he began to practise among the Adirondack natives. After four years he moved to Saranac Lake, then a small lumber centre with only a few houses and a sawmill.

A few patients placed themselves under his care, and gradually the number increased. The visitors to the lakes were generally wealthy people, but Dr. Trudeau gave the guides and their families free medical attention, and they were all devoted to him. When the doctor made up his mind to build a sanitarium at Saranac Lake for people of moderate means, the guides found out the piece of land he wanted and by subscription raised the money and gave Dr. Trudeau the deed. Plans for building were at once considered and the doctor, putting his pride in his pocket, began asking his friends, acquaintances, and patients for subscriptions towards the expenses. For thirty years he bravely continued to beg money for others, and on many occasions had great pleasure in the generosity of his friends.

This was not done easily and without setbacks. On the contrary, the thirty years were full, for Dr. Trudeau, of uphill and heroic effort, often in the midst of bad health, difficulties, trials and sorrows. Year by year he faced the problem of paying a debt on his sanitarium, because patients were charged a fee that did not cover expenses. Each and every day was lived among people who were often in the saddest condition. Three of his four children died, but he continued bravely in his work. His house and little laboratory were burned down-all his instruments and precious records lost—but he gradually rebuilt.

Besides looking after his patients in the sanitarium, and those who came from the country round, or journeyed from far to see him-for his fame grew fast-Dr. Trudeau was occupied constantly with experiments that would help in the fight against the disease. It was very hard to get instruments and apparatus, even in the cities, in those days, and we can imagine what it was in the very heart of the woods. His first laboratory was a little room at Saranac Lake, heated by a wood stove (there was no coal). He had a home-made apparatus, heated by a kerosene lamp, and in this he succeeded in growing the tubercle bacillus, which had been discovered by Koch to be the germ producing the disease.

Dr. Trudeau had many curious experiences among his patients. On one occasion at the end of a long day's work he saw a wretched-looking man waiting outside. The doctor was worn out, and it was in no very pleasant tone that he told the patient to enter, yet when he saw how thin and ill the last visitor was, his heart softened. The tramp sat down, put his hands in his pockets and stared at the

"How did you come here, and what is wrong?" asked the doctor, and his visitor, nothing loth, told a frank tale. He had been sent to a large public hospital, and not liking what he saw, determined to get out. In the ward he heard the doctors and patients speak of Saranac Lake and Dr. Trudeau, and made up his mind to strike out for the sanitarium. He was without a cent, but begged enough to get some little way on his journey. Soon, however, he was observed and put in the poorhouse. He told the authorities his story and his aim, and they bought him a ticket to Saranac. "In that way I finally got here. Now what can you do for me, Doctor?" The doctor collected enough money from some of his patients for the tramp to build a little rough board shanty on a vacant lot. There he slept on a straw bed, and the hotel proprietor gave him scraps from the table so that he lived very contentedly. He stayed for eighteen months and the doctor grew very fond of him.

So the work prospered and spread, and the fame of the delicate doctor grew. Other states, other cities and other individuals followed the plan of Saranac Lake Sanitarium, which was the first of its kind in America to practice the simple principles of fresh air, suitable food and rest. When Dr. Trudeau died in 1915, he had the satisfaction of knowing that his work marked the raising of the standard in the great fight against the white plague.

THE NEXT GOLDEN DEEDS ARE ON PAGE 6143. <del>\*\*\*</del>

### The Story of FAMOUS BOOKS

### A STORY OF EGYPT AND PERSIA

THIS story of Egypt when its power was declining, was written by Georg Ebers, a German professor of Egyptology. He made several expeditions to Egypt to study the remains of the past civilization, and made some important discoveries. One of them was the book which tells us most that we know about the medical knowledge of the Egyptians. Though he wrote several learned books, he took more pleasure in his stories. This is his first and most popular, but he wrote a half dozen others, describing Egyptian life in the long ago. This book was published in 1864, and was soon translated into several languages, and has been read in many lands. It is still popular.

### AN EGYPTIAN PRINCESS

six hun- continued from 5834 BOUT dred years fore the birth of Christ, the Greeks at last gained a port at the mouth of the Nile. The Egyptians hated strangers, and On his way into exile the ex-capclung to the ways and religion of their forefathers; and they feared lest the coming of foreign nations among them should cause great changes in their customs. Nevertheless, the Greeks by their hardiness and clever trading succeeded in pushing their way even into this closed land. and were given the town of Naukratis by King Amasis, where they might live

and trade and build temples to their

King Amasis felt the attraction of this wonderful people. His wife, Ladice, was a Greek, and the captain of his mercenaries, Phanes by name, was an Athenian. But the Egyptian priests hated the foreigners, for they knew that if Greek learning ever became popular in the land of the Nile, their own great influence would be at an end. So they were ever on the watch to discover some offence against the law or ancient customs of the country. It happened that Phanes, the handsome and witty captain of the foreign legions, showed contempt for the sacred animals of the Egyptians by having some kittens drowned. He was sentenced to death, and with difficulty could King Amasis succeed in changing the sentence to banishment. Not only had Phanes offended all the priests, but he had also incurred the

hatred of Psamtik, the king's son, who swore that the Greek should not escape his vengeance.

tain stopped near Naukratis with Rhodopis, a very beautiful woman,

whose house was the centre of the Greek colony in Egypt. Here he met many of his countrymen, learned the news from Greece, and obtained a promise from the mistress of the house that she would shelter his little boy and girl from the enmity of the prince while they were awaiting a ship to follow him to Thrace. Rhodopis was glad to do this for the courageous exile, and her granddaughter Sappho, a beautiful young girl who lived with her, welcomed the prospect of playmates.

At this time there came to the court of Egypt an embassy from King Cambyses of Persia, seeking the hand of the king's daughter, Tachot, in marriage. Cambyses did not come to Egypt in person but sent his brother Bartja, a handsome young prince of twenty years, with an old king, Croesus of Lydia, with him as adviser and guide. Amasis entertained the Persians with great splendor and rejoicings, and even offered to send, instead of Tachot, Nitetis, his fairest daughter, for Egypt stood in need of peace. At a great feast to celebrate the betrothal, Bartja, the young Persian prince, and Nitetis, the Pharaoh's daughter, were conspicuous for their superior beauty,

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grace and charm. The royal maiden wore a transparent rose-colored robe, in her black hair were fresh roses; she walked by the side of her sister, the two robed alike, but Nitetis pale as the lotus flower in her mother's hair.

"Be of good courage," said her mother, "and meet thy fortune bravely. Here is the noble Bartja, the brother of thy

future husband.'

Nitetis raised her dark, thoughtful eyes and fixed them long and inquiringly on the beautiful youth. He bowed low before the blushing maiden, kissed her gar-

ment and said:

"I salute thee, as my future queen and sister! I can believe that thy heart is sore at parting from thy home, thy parents, brethren and sisters; but be of good courage; thy husband is a great hero, and a powerful king; our mother is the noblest of women, and among the Persians the beauty and virtue of woman is as much revered as the life-giving light of the sun. Of thee, thou sister of the lily, Nitetis, whom, by her side, I might venture to call the rose, I beg forgiveness, for robbing thee of thy dearest friend."

As he said these words he looked eagerly into Tachot's beautiful blue eyes; she bent low, pressing her hand upon her heart, and after he had gone let her thoughts dwell lovingly upon the gallant

prince

One of the pleasures that the Persians enjoyed in their stay in the strange country was a visit to Rhodopis, near Naukratis. At her house they met and all talked with the exiled Phanes, who was waiting for a ship to bear him into Thrace, for he dared not outstay his time, knowing that Psamtik's jealous anger was seeking to do him harm. One night when some of the Greeks and older Persians supping together, the younger strangers surprised an ambush that had been laid around the house to entrap Phanes, but by disguising himself the latter escaped from the land. He bore with him a secret very dangerous to the reigning house of Egypt, namely, that Nitetis in reality was no daughter of King Amasis, but the only child and heiress of King Hophra, whom Amasis had deposed. By fraud, therefore, Amasis was trying to make an alliance with Persia, and it was certain that the wrath of Cambyses. if the trick should be discovered, would be terrible indeed.

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At the house of Rhodopis, also, Bartja saw the charming Sappho, and fell deeply in love with her. The change which the power of love made in his character, passed unnoticed by all but Tachot, the daughter of Amasis. From the first day on which they had spoken together she had loved him, and her quick feelings told her at once that something had happened to estrange him. In her distress she confided her sorrow to Nitetis, who bade her take courage, and the two built many a castle in the air, picturing to themselves the happiness of being always together at one court and married to two Nevertheless, Bartja's roval brothers. love for Sappho increased, and before leaving for Babylon, he obtained a promise from her grandmother that the girl should be his bride when he returned from Persia.

Three days later, a densely packed crowd surged round the landing-place. They had assembled to bid a last farewell to their king's daughter, and when at last the wind filled the sails of the royal boat and bore the princess, destined to be the great king's bride, from their sight, few eyes among that vast crowd

remained dry.

Seven weeks after Nitetis had quitted her native country, a long train of equipages and horsemen was to be seen on the king's highway from the west to Babylon, moving steadily towards that gigantic city, whose towers might already be descried in the far distance. The highroad followed the course of the Euphrates, passing through luxuriant fields of wheat, barley and sesame. Slender date-palms covered with golden fruit were scattered in every direction over the fields, and although it was winter, the sun shone warm and bright from a cloudless sky.

At the last resting place on the journey, Nitetis descended and put on Persian dress, to appear well-pleasing in the eyes of Cambyses. The splendid silken garments of a Median princess, flashing with gold and jewels, set off her dark beauty and she seemed already clothed in the majesty of a queen, when a troop of two hundred horsemen on white horses appeared in full gallop before her. Their leader rode a powerful coal-black charger, and wore a vesture of scarlet and white, thickly embroidered with eagles and falcons in silver. The lower part of his dress was purple, and his boots of yellow

leather. He wore a golden girdle and in this hung a short dagger-like sword, the hilt and scabbard of which were thickly

studded with jewels.

His hair and beard were black as ebony, and his features pale and immovable, but his eyes glowed with a fire that was scorching. Across his high forehead, arched nose and thin upper lip ran a deep, fiery-red scar, given by the sword of a wild enemy. His whole demeanor expressed power and unbounded pride. Bringing his unruly steed to a stand by the side of Nitetis' carriage, he gazed upon her, and waving his hand in token of welcome, rode to her escort, who had alighted from their horses and were awaiting him. He commanded Croesus, the aged king of Lydia, to ride with him at the side of the carriage as an interpreter between himself and Nitetis.

"She is beautiful and pleases me well," began the king. "Interpret faithfully all her answers, for I understand only the Persian, Assyrian and Indian

tongues."

Nitetis caught and understood these words. A feeling of intense joy stole into her heart, and before Croesus could answer, she began softly in broken

Persian, and blushing deeply:

"Blessed be the gods, who have caused me to find favor in thine eyes. I am not ignorant of the speech of my lord, for the noble Croesus has instructed me in the Persian language during our long Forgive if my sentences be broken and imperfect; the time was short and my capacity only that of a poor and

simple maiden.

Pleased at this sign of industry, for he was accustomed to see women grow up in idleness and ignorance, Cambyses greeted her kindly, and gave her for her dwelling a pleasant palace in the hanging gardens. There she could live apart from his other wives and under no rule save his own, and when she became familiar with the customs of Persia and the religion of his gods the law of the land would allow him to marry her.

And so began a quiet but happy life for Nitetis in her country home. Her only companions were Kassandane, the blind queen-mother, and Atossa, Cambyses' young sister. Every day she re-ceived instructions from Croesus, who talked to her about Egypt and her loved 

ones, but always in Persian, and every second day the high priest was in attendance to teach her the Persian religion. She saw Cambyses only rarely, but he presented her continually with rich dresses and costly jewels, and her former fears of him changed into love and ad-

The king had many other wives, but he no longer cared for them after he had seen Nitetis. For this they blamed the Egyptian princess, and would have rejoiced if evil had come to her. Boges, also, chief of the eunuchs, and keeper of the women, lost power because he had no rule over Nitetis, and he began a plot

to ruin the blameless girl.

Now Bartja, the younger son of Cyrus the Great, was more beloved by the people than Cambyses the tyrant, and for this reason, his brother was sometimes jealous of him, and sent him to subdue a wild tribe upon the frontier after his return from Egypt, because he suspected that Nitetis loved him. Cambyses at last grew certain that he was loved by Nitetis, and when Bartja returned victorious from his war, greeted him warmly and bade him ask upon his birthday for any favor that he would have. The king's birthday was celebrated with great pomp throughout the land; sacrifices to the gods were offered early in the morning upon the banks of the Euphrates, and at noon Cambyses began a great feast to which the envoys from the conquered provinces were bidden.

The great throne-room presented a vision of dazzling and magic beauty. In the background, raised on six steps, each of which was guarded by two golden dogs, stood the throne of gold; above it, supported by four golden pillars studded with precious stones, was a purple canopy. The walls and ceiling of the en-tire hall were covered with plates of burnished gold, and the floor with purple carpets. Before the silver gates lay winged bulls, and the king's body-guard, their swords in golden scabbards, and their lances ornamented with gold and silver apples, were stationed in the court of the palace.

That day, Nitetis for the first time took part in the general sacrifice made by the king's wives, and tried to pray to the new gods in the open air before the fire-altars and amid the sound of religious songs strange to her ears.

gaze of the women around her, and the loud music, disturbed her, and her thoughts strayed back to the solemn stillness of the gigantic temples in her native land, where she had worshipped the gods of her childhood so earnestly at the side of her mother and sister. And then, too, she longed to get back to her room to read her first letter from Egypt, which had arrived that day.

At last the long ceremony was over, and Nitetis, ordering her litter, was carried back to her dwelling and hastened to the table where lay the scroll. Breaking the seal, she began to read in a happy mood, but her face soon grew serious and when she had finished the letter fell to the ground. Her eyes were dimmed with tears and her head, carried so proudly but a few minutes before, now lay in the jewels which covered the table. Amasis had been stricken with blindness, and Tachot-her loved Tachot-lay sick of a wasting fever which none could cure, for no one knew the cause thereof! Nitetis sat in her royal purple, weeping, forgetful of everything but her mother's grief, her father's misfortune and her sister's illness. Unnoticed, outside of one of the windows, Boges, chief of the eunuchs, stood peering in and taking count that Cambyses' chosen bride was weeping on her lover's birthday.

At the royal banquet that night, Nitetis sat by the king in all the splendor and dignity of a queen, but looking very, very pale in her new purple robes; she was thinking of her young sister, Tachot, dying for love of Bartja. Cambyses had never felt so happy as on this day and his usual severity seemed to have changed into good-nature, as he turned to his brother Bartja with the words:

"Come, brother, have you forgotten my promise? Don't you know that to-day you are sure of gaining the dearest wish of your heart from me? Drain the goblet and take courage! But do not ask anything small, for I am in the mood to give largely to-day."

Bartja, whose cheeks were glowing from agitation, bent his head close to his brother's ear and whispered shortly the story of his love for Sappho. close of the whispered tale Cambyses embraced him kindly, and looking at the Egyptian, exclaimed:

"In a few days our brother Bartja will leave us for your country, Nitetis, and will bring back another jewel from the shores of the Nile to our mountain home." And Nitetis, who knew nothing of his love for Sappho, believed that it was Tachot whom Bartja meant to fetch, and fainted for relieved joy and happiness. Cambyses sprang to her help, and when she had recovered consciousness went on:

"Bartja is going to your own country, my wife—to Naukratis on the Nile—to fetch thence the granddaughter of a certain Rhodopis and daughter of a noble warrior, as his wife." The blow to her new-sprung happiness was too cruel, and Nitetis let slip the cup which her royal lover had given her and it fell ringing on to the ground. Cambyses, all his former suspicions of his princess's love for Bartja suddenly revived, broke up the banquet in disorder and dismissed the women to their quarters, forbidding any, under pain of death, to approach the palace of

the hanging gardens.

That night, Boges, chief of the eunuchs, arranged that a young man resembling Bartja should gain entrance to the palace, and have an interview with the waiting woman of Nitetis, whom he loved and never had a chance of seeing. Boges, at the appointed time, led Croesus, the high priest, and some of the king's kinsmen, into the gardens on the pretence of showing them a marvelous blue lily that had just blossomed. These all saw a man, who looked like Prince Bartia, leap out of Nitetis' window and escape behind the cypresses. When the news was brought to the king he ordered that his brother should be strangled on the morrow, and the guilty Nitetis set astride upon an ass and flogged through the streets of Baby-

Since the banquet, Nitetis had been closely guarded in her lonely palace, and she knew nothing of the evil plot which was being twined around her life. When Boges, therefore, with evil glee read to her the awful sentence of execution, in utter ignorance as to how she could have so angered the king, she resolved to take poison when the hour approached.

Before the sun had reached his midday height the news of what had happened and of what was still to happen had filled all Babylon. The streets swarmed with people, waiting impatiently to see the strange spectacle which the punishment of one of the king's wives promised to 36 imes imes

afford. At the gate, called the Bel Gate. which led to the great western highroad, the throng was thicker than at any other point, for it was said that through this door, the one by which she had entered Babylon, the Egyptian princess was to be led out of the city in shame and disgrace. It only wanted a few hours to the time fixed for the spectacle, when a caravan approached the city, driving at great speed. Crying out that he had come to save Bartja, the idol of the people, Phanes, for it was he, soon procured an escort to the royal presence. Cambyses was lying on his purple couch, pale as death. At first he would not hear the testimony that the Greek offered, but some mysterious influence that Phanes exercised over him caused him to listen.

Not far from the walls of Babylon, Phanes related, his caravan had heard cries of distress and come upon a fearful Three wild-looking fellows had just pulled a youth from his horse, stunned him with heavy blows and were on the point of throwing him into the Euphrates. They fled as Phanes approached, and he with horror gazed down upon what he believed were the features of Bartja. In his delirium, however, the wounded man discovered his identity, and babbled of the hanging gardens and some lovers' meeting there with a woman called Mandane.

"Mandane, Mandane," said Cambyses in a low voice. "If I do not mistake, that is the name of the highest attendant on Amasis' daughter. Fetch Boges and Mandane." The eunuch was nowhere to be found. He had vanished from the hanging gardens in an unaccountable manner, but Mandane was brought to the king's presence, and weeping confessed that, helped by Boges, she had met her lover in the palace of the Egyptian princess. The news had come too late to avert a tragedy: upon the approach of the hour set for her shame, Nitetis had swallowed poison.

On the twelfth day after her death, Phanes, who had really come to Persia to secure vengeance upon Prince Psamtik because he had stolen his children from Rhodopis' keeping, asked for an audience with the king. He told Cambyses that Nitetis was the daughter of the deposed Hophra, and not of Amasis, and that Amasis had deceived him in the matter. By the law, Nitetis' right to the throne 

of Egypt descended to her husband, and Cambyses was lawful monarch of the land of the Nile.

Glad of something to distract him from his grief, Cambyses welcomed the prospect of a campaign in Egypt, for the ancients believed that only by constantly occupying their people in war could their vigor and manliness be maintained. He called a council of war, and appeared at table in royal robes instead of his mourning garments. The Arabians were secured as allies, and preparations for war set on foot.

In the meantime, Tachot, Amasis' own daughter, died. Once, in a crowd, she had seen Bartja again, for he had come to Egypt for his marriage to Sappho. She was ignorant of this, and believing it was for her sake that he had come, died happily. An hour later, Amasis the king, borne down by the news of the Persian advance upon Egypt, and his dearly loved child's death, died also.

Psamtik succeeded him on the throne of the Pharaohs, and one month before the time of the flooding of the Nile, the Persian and Egyptian armies were standing face to face, near Pelusium, on the northeast coast of the Delta.

Just before the great hosts joined battle, Psamtik gave Phanes' child over to the Greek mercenaries, saying that her father had betrayed his countrymen and country. And the wild troops killed her cruelly and drank her blood in her father's sight, as the troops were not more than a bow-shot apart, and then rushed on to the battle. At noon, fortune seemed favoring the Egyptians, but at sunset the Persians had the advantage, and when the full moon rose, the Egyptians were flying wildly from the battlefield, perishing in the marshes and in the Nile, or being cut to pieces by the swords of their enemies. Twenty thousand Persians and fifty thousand Egyptians lay dead on the blood-stained sea-sand.

Psamtik fled to Memphis, but he was followed and captured by Cambyses, and later lost his life urging the priests to rebel against their conqueror. The Persian king became monarch of Egypt, but his victory did not remove the longing for Nitetis from his mind. He sank into melancholy and madness, and finally perished as he was hastening back to Babylon.

THE NEXT STORY OF FAMOUS BOOKS IS ON PAGE 6235.

# THE CAPITOL SQUARE IN RICHMOND ON THE JAMES



The Capitol Square in Richmond, once seen, will never be forgotten. The dignified capitol building on the right was planned by Thomas Jefferson, on the model of the faison Carrée at Nimes, France. During the Civil War, the Confederate Congress met in this building. To the left is the City Hall. Several fine statues adorn the rounds, and in the Capitol itself is the only statue of Washington modeled from life. It is by the great French sculptor, Jean Antoine Houdon. Maison

### The Book of HE UNITED STATES



Broad Street, in Augusta, Georgia, a beautiful Southern city.

### GLIMPSES OF SOUTHERN STATES

settlement CONTINUED FROM 5830 and the early history of the Southern States of our country are told in the History of the United States, which also tells of the great war between the sections. This article will show something of the South to-day, which has changed much since the Civil War.

First, we must decide what we mean by the South. Eleven states seceded and formed the Confederate States of America. They were Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas and Tennessee. Besides these, Maryland, Delaware, Kentucky and Missouri also held slaves and are sometimes called Southern States. West Virginia was made a state during the war, because few slaves were held in that part of Virginia, and the people did not wish to leave the Union. It is not really a Southern state. Oklahoma, one of the newest states, is sometimes called Southern and sometimes called Western.

These states are not all alike, for Copyright, 1912, 1918, by M. Perry Mills.

the South is a large section. Even different parts of the same state may be very much unlike in surface and industries. The people also are very much unlike in the way they live and in their thoughts. What is true of one part is not true of another.

### How does one get to THE SOUTH?

From Washington several lines of railway lead southward. We may go to Richmond, one of the most interesting cities in the United States. It was founded soon after 1737 and in 1779 became the capital of Virginia. During most of the Civil War it was also the capital of the Confederacy. It is a beautiful city overlooking the James River, with large parks, beautiful drives, and stately homes.

From Richmond we may go westward to Charlottesville, to see the University of Virginia, founded by Thomas Jefferson; or we may go to some of the delightful resorts among the mountains; or we may go to Lexington, a spot sacred to the Southern people, for there General Lee spent his last years as president of

Washington College, and there Stonewall Jackson taught in the Virginia Military Both are buried there. Institute.

On the other hand we may go from Richmond down the river past the ruins of Jamestown, where Englishmen first succeeded in planting a permanent colony in our country, on our way to Norfolk and Newport News, both busy cities, on one of the best harbors in the world. There are great shipyards at Newport News, and perhaps we may see a ship launched. What a thrill it gives one to see the land where the first American state began to grow. Old Point Comfort, the site of Fortress Monroe, is a favorite resort for health and pleasureseekers, winter and summer, and nearly always vessels of the United States Navy are in the harbor or the Navy Yard at Portsmouth.

### ROANOKE ISLAND, WHERE SIR WALTER RALEIGH FAILED

From Norfolk it is a short journey to the eastern coast of North Carolina, with broad shallow sounds shut off from the sea by sand bars. We may visit Roanoke Island, where Sir Walter Raleigh tried three times to plant a colony, and see where the old fort stood. All this section is low and fertile, with so many streams that boats are used as often as carriages to go from place to place. Newberne is an old town, founded more than two hundred years ago by Swiss settlers, and further to the south is Wilmington, on the Cape Fear River, also an old town. It is an important port from which cotton and naval stores go to all parts of the world. During the Civil War it was one of the chief ports from which steamers ran the blockade, taking out cotton and bringing back manufactured articles, for which there was such sore need in the Confederacy.

In the centre of the state is Raleigh, the capital of the state, named for the man who planted three colonies in the state. Further to the west are Durham, Greensboro and Winston, all important manufacturing towns, which send their products to all parts of the world. At Chapel Hill, near Durham, is the University of North Carolina, founded in 1789, one of the oldest state universities.

Going southward from Greensboro, we are seldom out of sight of a furniture factory or a cotton mill, until we reach Charlotte, the largest city in the state, and a

centre of the cotton industry, for North Carolina has more mills than any other state. Perhaps, however, we turn west at Salisbury and go to Asheville among the mountains, or to some of the other resorts in the "Land of the Sky." Thousands of tourists visit these mountains every year. In summer they come from the South; in winter from the North.

### CHARLESTON, THE BEAUTIFUL OLD CITY WHERE THE WAP BEGAN

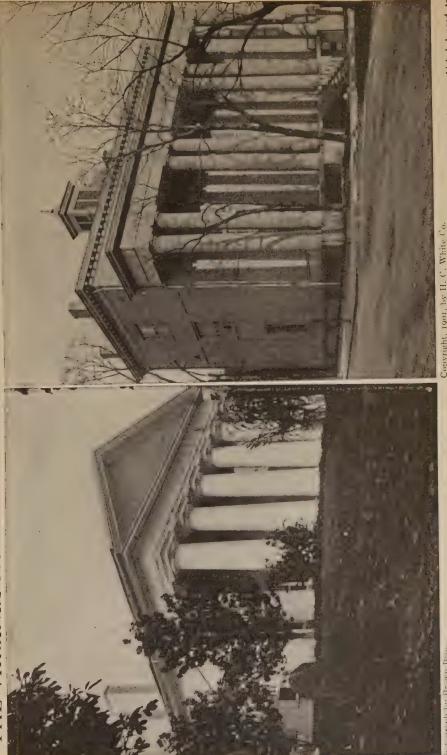
One speaking of South Carolina always thinks first of Charleston, the beautiful, some pictures of which we show on another page. The low country in which Charleston is situated is famous for the production of the sea-island cotton, and of rice. In some sections few white people live, and we see black faces almost entirely. More than half the people of this state are negroes. Columbia, the capital, was burned after its capture by General Sherman in 1865, but has been Its broad streets, with their fine trees, its monuments and public buildings, and its great manufacturing establishments make it worth a visit. Aiken is a famous winter resort.

There are other thriving towns in South Carolina but we are now on our way to Atlanta, the chief city of Georgia. Nearly all of the cities and towns we have mentioned are old, but we come now to a town which is comparatively new. It was well-situated for trade, and was beginning to gain importance before the Great War. Since that time it has grown rapidly and is often compared to the Western cities. principal business streets are bordered by high buildings and there are many fine residences on others. Atlanta was the home of Joel Chandler Harris, whose Uncle Remus stories all of you have read.

### THE COTTON FIELDS AND THE FORESTS OF GEORGIA

The state grows much cotton and manufactures much that it grows. The pine trees furnish tar, pitch and turpentine. The two chief cities in the eastern part are Augusta, on the Savannah River. over two hundred miles from the mouth, and Savannah, only a few miles from the sea. Both are important manufacturing cities, both send ships to all parts of the world, and both are popular winter resorts. Sea-island cotton grows on the coast, and raising fruits and vegetables for the northern markets is also an im-

## THE VIRGINIA HOMES OF ROBERT E. LEE AND JEFFERSON DAVIS



these two houses are particularly interesting to Southern boys and girls. The one on the left is Arlington, just across the Potomac from Washington, which belonged to Mrs. Robert E. Lee. It now belongs to the United States, and the grounds are a National Cemetery. The other house was occupied by Jefferson Davis while he lived in Richmond, and is sometimes called "The White House of the Confederacy." It is now a Confederate museum, and contains many relics of distinguished Southerners.

portant industry. We are now getting so far south that winter is hardly more than a name, though ice forms occasionally during the colder months.

### THE LAND WHERE IT IS ALWAYS SUMMER

South of Georgia is the state with the longest coast line, Florida, stretching out like a long finger into the sea. It is almost entirely an agricultural state except for the manufacture of tobacco and lumber. Raising tropical fruits and vegetables for the northern markets is the chief industry. Oranges, grapefruit and pineapples are known to us all. Strawberries ripen before the snows are gone in New England, and many other berries are also grown.

Early vegetables are sent to the northern markets before gardens are even planted in that section. Much of the southern part of the state is a swamp, known as the Everglades, inhabited only by Indians and a few white men who have pushed their way into the wilds. Alligators, snakes and tropical birds abound, but the plume-hunter has almost destroyed several species of the birds for their feathers. These swamps are now being drained so that the land can be cultivated.

The climate draws thousands every year who seek to escape the cold of their homes, and for their accommodation many gorgeous hotels have been built. Augustine, the oldest city in the United States, Tampa and Palm Beach are among the leading resorts. Jacksonville is the largest city, but the capital is Tallahassee.

### LABAMA, A STATE OF COTTON, COAL AND IRON

Our next state is Alabama, low and swampy in the south near the Gulf, but hilly further north, with mountains of coal and iron. Here were, and still are. great plantations upon which hundreds of negroes work. In some counties they outnumber the whites five to one. The state is one of the largest producers of cotton, but has also great mineral wealth. Mobile, on Mobile Bay, opening from the Gulf of Mexico, is an old city which was once the capital of the Louisiana Territory, and has been in turn under French, British, Spanish and American control.

Montgomery is the capital, and here the Confederate government was organized February 4, 1861. Birmingham,

sometimes called the Southern Pittsburgh, manufactures much iron and steel, and has grown into a city on that account. At Tuskegee is the Tuskegee Institute for the education of colored people in various trades. Booker T. Washington was the first president.

### Some of mississippi below the level of the river

The adjoining state of Mississippi is also a great producer of cotton, though other crops also grow well as the soil is very rich. Along the Mississippi, great banks called levees have been built to protect the fields from overflow by the floods of the great river. Nearly all the people live in the country, as the cities are small. More than half the population is composed of negroes. Natchez and Vicksburg, on the Mississippi, are the chief cities. The latter was fortified by the Confederate armies during the Civil War and was only taken after a long siege in 1863, by the Union forces under General Grant, as you may read on another page. The capital is Jackson, near the centre of the state.

You may read on page 1396 how the great Louisiana Territory was purchased by the United States, and to this day signs of its former French ownership still may be seen. Some of the inhabitants speak only French, though the number of such is growing smaller. In New Orleans, the chief city, one part is called the "French quarter," and shows many quaint reminders of bygone days. This city is below the level of high water in the Mississippi, which is kept out by the levees. In the cemeteries the dead are buried in vaults constructed above the The Carnival is held in the spring, ending with Mardi Gras, the last day before Lent, and attracts thousands of visitors. The city is noted for its flowers.

There are no other large cities. Shreveport, and Baton Rouge, the capital, are the largest. The state raises most of the sugar-cane grown in the United States, as well as much cotton, rice and corn. The forest wealth in pine and cypress is enormous.

### TEXAS IS LARGER THAN MOST COUNTRIES OF EUROPE

Leaving Louisiana and crossing over into Texas brings us into an empire which would require a book to describe. It is the largest state in the Union. Some counties are larger than several ₩

# COTTON FIELD AND COTTON MILL IN NORTH CAROLINA





Copyright, 1907, by H. C. White Co.

also the immense weaving room of the White Oak Mills of Greensboro, where cotton is being transformed into cloth. Though negroes cultivate and pick the cotton, they Vorth Carolina has become one of the leading states in the manufacture of cotton, which is very often grown in fields around a mill. Here are cotton pickers at work, and That work is done by white men, women and children, most of whom have come from the farms to the mills. The mills are generally in villages. ew are in cities. In fact there are few cities, or even large towns, in North Carolina. North Carolina has more cotton mills than any other state, but many are small. Copyright, 1899, by R. L. Singley. seldom work in the mills.

states. In population it ranks fifth and is growing rapidly. Almost every variety of soil is to be found, and many different crops can be grown. Though for a long time cattle-raising was the chief industry, agriculture now holds the first place, and considerable manufacturing is developing. There are yet, however, many great ranches where thousands of cattle feed.

As you have read in another volume, Texas was once a part of Mexico and gained independence by hard fighting. Along the Rio Grande, which now separates the state from Mexico, the influence The inhabitof that nation is strong. ants of Texas have come from every state in the Union, and there is room for thousands more.

The chief cities are San Antonio, a picturesque city founded by the Spaniards about two hundred years ago; Dallas, a thriving manufacturing city; Galveston, the principal port; El Paso, on the Rio Grande, just across from Mexico; Houston, named for Sam Houston, the great Texan, and Austin, the capital.

West of Texas lie the new states of New Mexico and Arizona, but their population is small as yet, and they belong to the West rather than to the South. The new state of Oklahoma, north of Texas, was until recently Indian Territory, and was not a part of the Confederacy. This state has increased rapidly in population, and the people are prosperous. The capital is Oklahoma City. Towns grow up in this state almost in a night.

### Arkansas has a great variety of surface

Arkansas, north of Louisiana, is almost altogether a farming state, though the mineral wealth is considerable, and the forest wealth is very great. Next to the Mississippi, the land lies low and is very fertile, and the same is true of the land along the Arkansas River, which divides the state into almost equal

The only city of considerable size is Little Rock, which is also the capital. Hot Springs is a flourishing little city, which has grown up around many springs of hot water, which have medicinal properties. Thousands visit these springs every year to bathe in the waters, and to drink the waters of some of them. The springs are owned by the United States.

### TENNESSEE IS AN INTERESTING STATE FOR MANY REASONS

We may now turn eastward and cross the Mississippi into Tennessee at Memphis, on the only bridge across the stream south of St. Louis. This is the largest city in Tennessee, has a great trade up and down the river, and is becoming an important manufacturing city.

The state itself is one of the most interesting in the Union for many reasons. It was originally a part of North Carolina, which gave up its rights just after the Revolution. Almost every variety of soil and climate may be found, as we go from the lowlands below the level of the Mississippi, eastward through a fine agricultural and grazing country to the high mountains, which separate it from North Carolina. Along the Mississippi the vegetation is almost tropical, while in the mountains many plants and trees which are generally found much further north grow freely.

The capital is Nashville, a beautiful city, important in the Civil War. Vanderbilt University, George Peabody College for Teachers, and other educational institutions are located here. Chattanooga, near the Georgia line, is a thriving manufacturing city. Here one of the bloodiest battles of the Civil War was fought. Knoxville is also a thriving city.

### WHAT WE DO NOT TELL ABOUT THE SOUTH

Now we have told something of all those states which seceded, and tried to form a new nation, but which are now thoroughly and entirely a part of the United States. Many of the people of Missouri and Kentucky, as well as of Maryland and Delaware, like to call themselves Southerners, but we have not space to speak of those states just now.

Much could be written of life in the South, of the negroes, of the sports, manners and customs of the people, but all these must be left for another time. All the Southern States have increased greatly both in population and wealth since the Civil War. Some are rapidly becoming manufacturing states, instead of devoting almost all their attention to agriculture. The most important industries are the manufacture of cotton yarn and cloth, cotton seed oil, furniture and other articles of wood, tobacco, iron and steel, but there are many others.

THE NEXT STORY OF THE UNITED STATES IS ON PAGE 6071. 

### CHARLESTON, THE BEAUTIFUL



The most fashionable residence district of the delightful city of Charleston is the Battery on the water front. No city in the United States is more attractive as a place of residence. This charm has always been a part of Charleston, and is felt by every visitor. The capture of Fort Sumter in the harbor, in 1861, by the newly organized Confederate forces, was the beginning of the Civil War.



Though Charleston is a beautiful city with a restful atmosphere, it is also an important port. From its docks ships sail to Europe carrying cotton, rice and many other things. This is the Commercial Wharf. The bales of cotton shown may soon be on the other side of the world. The South is the world's great source of cotton and sends abroad more than half of the crop raised in the section.

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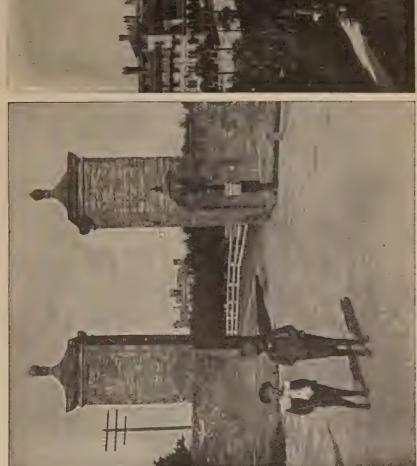
### TIME AND FIFTY YEARS LATER ATLANTA IN WAR

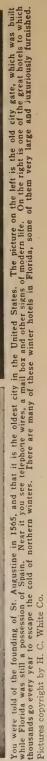




Photograph by Brady.
On November 17, 1866, during the Civil War, the greater part of Atlanta was burned by order of General Sherman, who had captured the town after hard fighting. Its growth since that time has been marvelous, both in population and wealth. The Candler building shown here is only one of many great office and manufacturing buildings in the thriving city. Many great establishments in other sections have their Southern offices in Atlanta, which is a great railroad and manufacturing centre of the South. 

## THE OLDEST CITY IN THE UNITED STATES





### THE CAPITOLS OF TWO SOUTHERN STATES



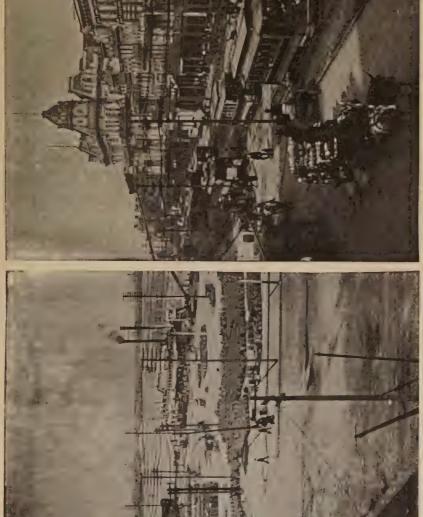
Situated at the end of a broad street in the pleasant little city of Montgomery is the Capitol of Alabama. Here the delegates from seven Southern states met in February, 1861, and formed the Confederate States of America. The seat of government was soon changed, however, to Richmond.



This is the Capitol of Mississippi at Jackson, a very dignified building, evidently modeled after the National Capitol at Washington, though with many changes. If you will study the pictures of Greek architecture given elsewhere you will see how much our public buildings have been influenced by men, who lived more than two thousand years ago.

Pictures from Brown Bros.

# IN NEW ORLEANS, THE CRESCENT



New Orleans, the largest city in the South, is built on the Mississippi River, more than one hundred miles from the mouth. It is built on a bend of the river, and is often called the "Crescent City." As much of it is below the level of the river, great banks called the "Leves have been built to shut out the water, and these asso serve as Marvees. Our pictures show stanners loading at the levee, and Canal Street, one of the principal thoroughlates of the city. This street divides the old French portion of the city from the newer American part. New Orleans is unlike any other American city, and thousands of tourists from other parts of the country visit it.

### COUNTRY AND TOWN



Texas is an empire in itself, and can support a population many times larger than it has at present. is the leading state in cotton, but can grow almost any crop produced elsewhere. This is a field of Kafir from noe of the best food crops for cattle, but in Africa, India and China the seeds are used for human food also. This crop was grown near Amarillo, Texas, and the yield is very heavy.



Dallas is not only the leading manufacturing city of Texas, but is also the leading cotton market of the United States away from the seacoast. The surrounding country is very fertile, and the city is growing rapidly in population and wealth. It is a railroad centre, an educational centre, and is being developed according to a city plan drawn up by experts. High commercial buildings are being constructed. 

### CHATTANOOGA AND NASHVILLE, TENNESSEE



Around Chattanooga, now so peaceful and prosperous, were fought some of the fiercest battles of the Civil War. The mountain beyond the city is Missionary Ridge. On November 25, 1863, a Federal army under General George H. Thomas, took by storm these heights defended by Confederates under General Braxton Bragg. Chattanooga was in turn in possession of Confederate and Federal armies.



The state Capitol at Nashville, Tennessee, stands on a considerable elevation and looks somewhat like a fortress. In fact during the Civil War it was so occupied, and the walls yet bear the marks of shells. Tennessee was originally a part of North Carolina, and the first settlers came from that state and from Photographs by Brown Bros.

### THE GIRL WHO PLUCKS THE TEA FOR YOU



The picking of the leaf is now practically the only part of the industry in which the tea is touched by hand. This woman, as she plucks the young leaf-shoots, puts them into the basket on her back.

Photographs on these pages are taken by the India Tea Association, Davidson & Co., Underwood & Underwood, and others.

### The Book of FAMILIAR THINGS



Tea-pickers at play after a day in the tea gardens in India.

think little enough of the tiny leaf which floats in our cup of tea, yet the little leaf has had a world of adventure. It may have grown in China, or in India or Ceylon. It has sprung up on land rich with the leaves and fibres of a dead forest; it has borne the intense heat of the sun, and flourished through heaviest rains.

It may have reached its prime on a sheltered plain, or attained perfection on a loam-strewn mountain-side. And when the life of the leaf upon the plant is ended by the picker, complicated machinery takes it and bakes it, ferments it and sorts it and packs it, and sends it forth.

Nobody can say certainly where the first of these plants grew, but it is believed that tea was first used in China, not for the preparation of a beverage but for a medicine. By the eighth century the custom of teadrinking was so popular there that the first of a long series of taxes was imposed upon the article. After that tea-drinking spread rapidly among Chinese peoples, and since it became known to Western countries in the seventeenth century "China" and "tea" have been inseparably connected.

The gigantic tea industries of India and Ceylon which have grown up in the last century have to a large

extent ousted Chinese tea from the markets of the world. Still China has such an enormous population of her own

tea-drinkers to supply that it is probable she will continue to be the chief tea-producing country in the world, even if she does not export so

much to other lands.

Excluding China and Japan, the principal tea-drinkers are the peoples of the United Kingdom, British Colonies, Russia and the United When tea first made its States. appearance in England early in the seventeenth century, it was so great a novelty that people paid from \$30 to \$50 a pound. At such a price it could never have become popular, but fully a hundred years later it still realized five dollars or more a pound in London, and the principal shop at which it was sold combined the business of tea-dealing and banking. As more tea came, prices became lower, and so great was the demand that the fastest ships were devoted to the tea trade. As soon as they got their cargo they raced home, and the ship which arrived first got the best price for the new season's crop. In 1866 three little sailing ships left Foochow, on the coast of China, together, made the voyage of fully 16,000 miles in ninetynine days, and were docked in London within two hours of one another

The use became common in America before the Revolution.

With the growing demand for tea from China, the East India Company thought that they might introduce the growth into India, and sent to China for seeds. But before the messengers returned tea was discovered growing wild in Assam. Planters lost no time in cultivating it, and in 1843 the first cargo of India tea was sent to London.

A tea plant is ready for the picker when it is about four years old. pickers, carrying a basket slung upon their shoulders, and supported by a band passed round the forehead, enter the plantation, and go from tree to tree. They take only a few buds and young tender leaves from each, and as they pick toss them into their baskets, which, when filled, are carried to the factory, and their contents weighed. The plant continues to grow all through the warm, rainy season, and picking goes on from day to day as new leaves come out.

### XX THAT HAPPENS AT THE FACTORY

At the factory the process of preparing tea is carried out. The tea is first emptied out on to shallow trays, and a pound of tea covers an area a yard square. The trays are then carried to a heated room, through which a strong current of air is forced. This is to soften and wither the tough leaf, which is ready when it has become quite soft and flaccid, a process which usually occupies from eighteen to twenty hours. Special machines consisting of cylinders rotating in hot air are sometimes used instead of the open trays. Next the leaves are passed through a machine which curls them, and presses the juice out on to their surface. Following this the tea is spread out in darkened rooms or placed in drawers in layers one or two inches thick, and covered with damp curtains, so arranged that they do not actually touch the leaves. The heat and moisture cause the tea to ferment, after which it goes through a sort of baking process for a few minutes to arrest fermentation and to dry out the moisture caused by it. During fermentation the leaf changes its color, until it becomes a bright copper shade, and the flavor of the tea develops.

The leaves have now to be sorted into sizes and qualities, sieves of various

meshes being employed for the purpose. Then, after a second drying, the tea is ready for market. It is packed by machinery into chests lined with lead, and away it goes to the ship.

The process, of course, varies in different districts. Great care must be exercised in the choice of wood for the chests, because tea readily absorbs odors and thereby loses its own flavor. particular three-ply wood consisting mainly of pine-wood is now much used.

So far we have been speaking of the Indian method of treatment, in which, from the time that it is picked, the tea is not handled at all. In China it is There the tea is rolled by hand and trodden by foot. Machinery

is now being slowly introduced.

For many years attempts have been made to grow tea in the United States, and there are tea-gardens of considerable size at Summerville, South Carolina, and at Pinehurst in North Carolina. Several thousand pounds a year of excellent tea are produced, but the cost of labor is so much more than in the East, that only expensive grades can be produced at a profit.

### X7HEN THE TEA SHIP ARRIVES

The tea trade is very important, and the way the tea is handled in Great Britain is interesting. When it arrives samples are drawn from the cargo and sent to the merchants, who submit them to the tea-taster, so that they may have his opinion on the quality and the value of the shipment. He has a tiny pot of tea made from each, and takes a sip from each brew. Those that he likes he commends, and the merchant buys them at the sale.

When the tea reaches the merchant's warehouse it has to be blended. merchant has a book in which are recorded all the different qualities of the water supplied to various districts. For each district there is a special blend. A which would be satisfactory if brewed in one part of the country would be quite unsuitable to the water of another part, and blending is therefore one of the important features of the Formerly it was done by industry. men with shovels on a floor: now it is done in immense rotating drums which thoroughly mix the selected kinds.

CONTINUED ON PAGE 6050. 

## THAT REFRESHES MILLIONS



Although tea was introduced into England less than 300 years ago, no less than 295,000,000 pounds is now used in the United Kingdom in a single year. This shows how the shrubs are cultivated in rows.



The tea plant is an evergreen shrub with leathery leaves, and white flowers which change into woody seed-vessels. Our teas generally consist of dried leaves of several varieties of tea plant blended together. 

## WHAT A TEA GARDEN IS LIKE IN INDIA



Originally nearly all the tea came from China, in 1843 a pound of tea came to London from Assam,—the beginning of the tea trade of India, where half a million people are employed gathering the leaves.



Many of the tea-pickers are boys and girls, like these little Cingalese, and are quite as quick and skilful at their work as the grown-ups. India and Ceylon now produce 500 million pounds of tea a year.

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## A TEA GARDEN IN NORTH CAROLINA



For years attempts have been made to grow tea in the United States, and success has finally come. Both in North and South Carolina are flourishing tea gardens. These pictures show a part of the gardens at Pinehurst, North Carolina. The land devoted to tea is surrounded by slender young pines. The plants in this part of the garden had grown old and straggling, and were cut back almost to the roots.



The pickers here are chiefly negro women and children, who pick the leaves carefully to avoid bruising them, and deposit them in the baskets. This garden produces an especially fine quality of black tea. The tea plants here seem to be able to withstand cold weather without great damage. Travelers say that they have never seen finer plants in Ceylon or India. Compare this picture with other pages.

# A HAPPY TEA PARTY IN A JAPANESE GARDEN



Three-quarters of a century ago China supplied most of the world's tea, but since that time other countries have grown immense quantities of tea, and Japan now produces more than forty-five million pounds a year.



The Japanese women in the tea plantations frequently carry their babies tied to their backs, as here shown. Japan exports much green tea, which is from the same plant as black tea, but is not fermented. Photographs copyright by Underwood & Underwood.



Twice a day the coolies bring their baskets of leaves to the factory, that the stock which they have picked may be weighed, and it is a very picturesque sight when they are gathered together, as shown here.



Pickers are paid according to the weight of leaves brought in, and there is much excitement as the baskets are placed on the scale. Of course, the quantity picked varies according to the skill of the pickers.



Even more exciting than the weighing is the paying of the wages. The pickers line up and approach the paying-out clerk in procession, each checking his or her money before passing to make room for the next. 

## THE TEA LEAVES ARE SIFTED AND DRIED



During the rainy season, when young leaf-shoots are forming, leaves are picked every eight or nine days. At the factory they are spread out on racks, as shown here, so that some of the moisture may evaporate.



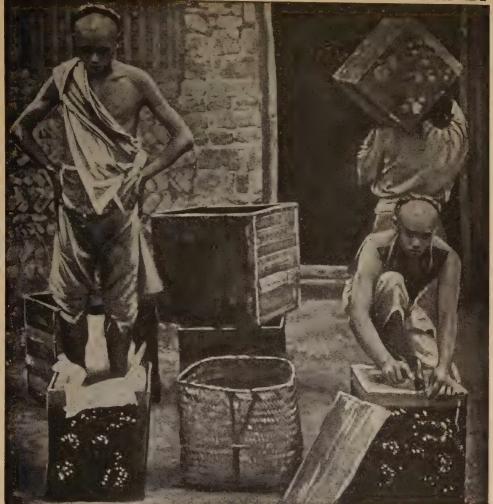
The leaves are next rolled to crush their cells and release the juices, then spread out in the air, rolled again, and fired or baked, after which the leaves are separated from the stalks and sifted, as shown here.



The tea is now fired once again, being placed on trays in what is called a drier, while currents of hot air are passed gradually over it until the leaves are firm and crisp. It is then ready for packing.

**≈**5978**≈** 

## PACKING THE TEA FOR ITS LONG JOURNEY



The Chinese still pack tea in the old-fashioned way. It is put into large cases lined with lead foil, and is trodden in by the coolies with their bare feet. Then the foil is closed over, and the lid is nailed down.



Modern methods prevail in India and Ceylon, whence much tea comes. There, much of the tea is packed ready for the stores in small packets, the metal foil covering being soldered down to keep the tea air-tight.



The tea that comes over in large cases is bulked and blended in the warehouses. This means that cases of various kinds of tea are emptied out in one great heap on the floor, and mixed by men or by machines.



Then it is packed back into the large cases, pressed down tightly, and sealed up ready for the stores. Australians and New Zealanders are the biggest tea-drinkers in the world, and the English come next. 5980 \*\*\*\*\*

# The Book of

## A COURT LADY

COURT LADY" was written by Elizabeth Barrett Browning. Both Mrs. Browning and her famous husband were deeply interested in the struggle for a united Italy and both wrote many poems dealing with this subject. The Brownings lived in Italy for a great number of years, and learned to love it as dearly as they did their own native land of England. Among Mrs. Browning's other well-known poems dealing with Italy is one entitled "Mother and Poet."

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CONTINUED FROM 5901

HER hair was tawny with gold, her eyes with purple were

dark, Her cheeks' pale opal burnt with a red and restless spark.

Never was lady of Milan nobler in name and in race,

Never was lady of Italy fairer to see in the face.

Never was lady on earth more true as woman and wife,

Larger in judgment and instinct, prouder in manners and life.

She stood in the early morning, and said to her maidens, "Bring

That silken robe made ready to wear at the court of the king.

"Bring me the clasp of diamonds, lucid, clear of the mote,

Clasp me the large at the waist, and clasp me the small at the throat.

"Diamonds to fasten the hair, and diamonds to fasten the sleeves,

Laces to drop from their rays, like a powder of snow from the eaves."

Gorgeous she enter'd the sunlight which gather'd her up in a flame,

While, straight in her open carriage, she to the hospital came.

In she went at the door, and gazing from end to end,

"Many and low are the pallets, but each is the place of a friend."

Up she pass'd through the wards, and stood at a young man's bed:

Bloody the band on his brow and livid the droop of his head.

"Art thou a Lombard, my brother? Happy art thou," she cried,

And smiled like Italy on him: he dream'd in her face and died.

Pale was his passing soul, she went on still to a second:

He was a grave hard man, whose years by dungeons were reckon'd.

Wounds in his body were sore, wounds in his life were sorer.
Art thou a Romagnole?"
Her eyes drove lightnings

before her.

"Austrian and priest had join'd to double and tighten the cord Able to bind thee, O strong one,free by the stroke of a sword.

"Now be grave for the rest of us, using the life overcast

To ripen our wine of the present, (too new,) in glooms of the past."

Down she stepp'd to a pallet where lay a face like a girl's,

Young, and pathetic with dying,—a deep black hole in the curls.

"Art thou from Tuscany, brother? and seest thou, dreaming in pain,

Thy mother stand in the piazza, searching the lists of the slain?

Kind as a mother herself, she touch'd his cheeks with her hands:

"Blessed is she who has borne thee, although she should weep as she stands.'

On she pass'd to a Frenchman, his arm carried off by a ball:

Kneeling . . . "O more than my brother! how shall I thank thee for all?

"Each of the heroes around us, has fought for his land and line,

But thou hast fought for a stranger, in hate of a wrong not thine.

"Happy are all free peoples, too strong to be dispossessed:

But blessed are those among nations, who dare to be strong for the rest!"

Ever she pass'd on her way, and came to a couch where pin'd

One with a face from Venetia, white with a hope out of mind.

5981

Long she stood and gaz'd, and twice she tried at the name,

But two great crystal tears were all that falter'd came.

Only a tear for Venice? she turn'd as in passion and loss, And stoop'd to his forehead and kiss'd it,

as if she were kissing the cross.

Faint with that strain of heart she mov'd on then to another,

Stern and strong in his death. "And dost thou suffer, my brother?"

Holding his hand in hers:-"Out of the Piedmont lion

Cometh the sweetness of freedom! sweetest to live or to die on."

Holding his cold rough hands,—"Well, oh, well have ye done

In noble, noble Piedmont, who would not be noble alone."

Back he fell while she spoke. She rose to her feet with a spring,-

"That was a Piedmontese! and this is the Court of the King.'

#### THE LOST LEADER

In the "Lost Leader" Robert Browning shows that the man who relinquishes an ideal suffers, not the ideal itself. JUST for a handful of silver he left us,

Just for a ribbon to stick on his coat-Found the one gift of which fortune bereft us, Lost all the others she lets us devote;

They, with the gold to give, dol'd him out silver,

So much was theirs who so little allow'd; How all our copper had gone for his service! Rags—were they purple, his heart had been proud;

We that had lov'd him so, follow'd him,

honor'd him, Liv'd in his mild and magnificent eye, Learn'd his great language, caught his clear

Made him our pattern to live and to die! Shakespeare was of us, Milton was for us, Burns, Shelley, were with us,—they watch from their graves!

He alone breaks from the van and the free-

He alone sinks to the rear and the slaves!

We shall march prospering,—not thro' his presence;

Songs may inspirit us,—not from his lyre; Deeds will be done,—while he boasts his quiescence,

Still bidding crouch whom the rest bade aspire.

Blot out his name, then, record one lost soul

One task more declin'd, one more footpath

One more devil's-triumph and sorrow for angels.

One wrong more to man, one more insult to God!

Life's night begins: let him never come back to us!

There would be doubt, hesitation, and pain,

Forced praise on our part—the glimmer of twilight,

Never glad confident morning again! Best fight on well, for we taught him-strike gallantly,

Menace our heart, ere we master his

Then let him receive the new knowledge and wait us,

Pardon'd in heaven, the first by the throne.

#### THE CIRCLE

An old rhyme whose truth is being dramatically illustrated in these dark days of war. The writer is unknown.

WAR begets Poverty, Peace begets Plenty, Then riches increase: Riches bring Pride, And Pride is War's ground, War begets Poverty, So goes the round.

#### ALAS! HOW LIGHT A CAUSE MAY MOVE

Thomas Moore who wrote the following verses was an Irish poet and singer and had great popularity in his own time.

ALAS! how light a cause may move Dissension between hearts that love! Hearts that the world in vain had tried; And sorrow but more closely tied;

That stood the storm when waves were rough,

Yet in a sunny hour fall off. Like ships that have gone down at sea, When heaven was all tranquillity! A something light as air.—a look.

A word unkind or wrongly taken, Oh! love that tempests never shook, A breath, a touch like this hath shaken! And ruder words will soon rush in To spread the breach that words begin; And eyes forget the gentle ray They wore in courtship's smiling day:

And voices lose their tone that shed A tenderness round all they said; Till fast declining, one by one, The sweetnesses of love are gone, And hearts, so lately mingled, seem Like broken clouds,—or like the stream That smiling left the mountain's brow,

As though its waters ne'er could sever, Yet, ere it reach the plain below, Breaks into floods that part for ever.

O you, that have charge of Love Keep him in rosy bondage bound, As in the fields of bliss above

He sits, with flowerets fettered round:-Loose not a tie that round him clings. Nor ever let him loose his wings; For even an hour, a minute's flight Will rob the plumes of half their light. Like that celestial bird,—whose nest Is found beneath far eastern skies,-

Whose wings, though radiant when at rest-Lose all their glory when he flies!

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### LOVE, DEATH, AND REPUTATION

This little fable appears in a collection of Charles and Mary Lamb's verses for children. It is probably by Charles Lamb, and is a poetic translation of a fable told in an old play of Queen Elizabeth's time. Its lesson is one of the most important we can learn—never to lose our good reputation.

ONCE on a time, Love, Death, and Reputa-

Three travelers, a tour together went; And, after many a long perambulation, Agreed to part by mutual consent.

Death said: "My fellow tourists, I am going To seek for harvests in th' embattled plain:

Where drums are beating, and loud trumpets blowing,
There you'll be sure to meet with me again."

Love said: "My friends, I mean to spend my leisure

With some young couple, fresh in Hymen's

Or 'mongst relations who, in equal measure, Have had bequeathed to them house or lands.

But Reputation said: "If once we sever, Our chance of future meeting is but vain: Who parts from me must look to part for ever,

For Reputation lost comes not again."

#### SONNET

In this sonnet Wordsworth gave voice to discontent with his own age that-to his mind-was given up to material things.

THIS world is too much with us: late and

Getting and spending, we lay waste our powers;

Little we see of nature that is ours;

We have given our hearts away,—a sordid boon!

This sea that bares her bosom to the moon,-The winds that will be howling at all hours, And are upgathered now like sleeping flowers-For this, for everything, we are out of time; It moves us not. Great God! I'd rather be A Pagan, suckled in a creed outworn: So might I, standing on this pleasant lea, Have glimpses that would make me less

forlorn; Have sight of Proteus rising from the sea, Or hear old Triton blow his wreathed horn.

#### **MEMORIES**

Longfellow, in the following poem, points out that beautiful things and pleasant things never die, for their roots endure. OFT I remember those whom I have known In other days, to whom my heart was led As by a magnet, and who are not dead, But absent, and their memories overgrown With other thoughts and troubles of my own, As graves with grasses are, and at their head The stone with moss and lichens so o'er-

spread,

Nothing is legible but the name alone.

And is it so with them? After long years, Do they remember me in the same way, And is memory pleasant as to me?

I fear to ask; yet wherefore are my fears? Pleasures, like flowers, may wither and decay, And yet the root perennial may be.

#### TO THOMAS MOORE

In this pledge to Thomas Moore it appears as though Lord Byron were thinking as much of himself as of his friend.

MY boat is on the shore, But, before I go, Tom Moore, Here's a double health to thee!

Here's a sigh to those who love me And a smile to those who hate: And, whatever sky's above me, Here's a heart for every fate.

Though the ocean roar around me, Yet it still shall bear me on: Though a desert should surround me. It hath springs that may be won.

Were't the last drop in the well, As I gasped upon the brink, Ere my fainting spirit fell, 'Tis to thee that I would drink.

With that water, as this wine, The libation I would pour Should be-Peace with thine and mine, And a health to thee, Tom Moore.

#### SELECTIONS FROM "IN MEMORIAM"

THE path by which we twain did go,
Which led by tracts that pleased us well, Thro' four sweet years arose and fell, From flower to flower, from snow to snow:

And we with singing cheer'd the way, And, crown'd with all the season lent, From April on to April went, And glad at heart from May to May.

When each by turn was guide to each, And Fancy light from Fancy caught And Thought leapt out to wed with Thought Ere Thought could wed itself with Speech.

#### LOVE SERVICEABLE

HE does not rightly love himself Who does not love another more.

COVENTRY PATMORE.

#### THE THRESHOLD

This charming verse expresses the desire common to us all, to remain akin to childhood, in spite of lengthening years. IFE lies before me, but shut is the door

On all my childish days. No more, no more

Shall I in all my years again be free And careless—happy as I used to be. So be it, Lord! I know that all is right; I would not alter it, or shirk the fight. Shut then the door!—but leave a little crack That when I meet a child I may slip back!

#### THE AUTHOR'S RESOLUTION IN A SONNET

George Wither was an English poet who reflects the spirit of the Cavalier or Royalist party although he fought for Parliament against the king, raising a troop of horse with money from the sale of his estates. His verse is very musical and highly

SHALL I, wasting in despaire Dye, because a woman's fair? Or make pale my cheeks with care Cause anothers Rosie are? Be she fairer than the Day Or the flowry Meads in May, If she thinks not well of me, What care I how faire she be?

Shall my seely heart be pin'd Cause I see a woman kind? Or a well disposed Nature Joyned with a lovely feature? Be she Meeker, Kinder than Turtle-dove or Pellican: If she be not so to me, What care I how kind she be?

Shall a woman's Vertues move Me to perish for her Love? Or her wel deservings knowne Make me quite forget mine own? Be she with that Goodness blest Which may merit name of best: If she be not so to me, What care I how Good she be?

Cause her Fortune seems too high Shall I play the fool and die? She that beares a Noble mind, If not outward helpes she find, Thinks what with them he wold do, That without them dares her woe. And unlesse that Minde I see, What care I how great she be?

Great, or Good, or Kind, or Faire I will ne're the more despaire: If she loves me (this beleeve) I will Die ere she shall grive. If she slight men when I woe, I can scorne and let her goe, For if she be not for me, What care I for whom she be?

#### ORSAMES' SONG

We have very little of Sir John Suckling's verse that has been preserved. He was a courtier, gay and careless in his living, yet withal possessed of a wit so polished and an ear so fine that each fragment is a little jewel.

WHY so pale and wan, fond lover? Prithee, why so pale? Will, when looking well can't move her, Looking ill prevail? Prithee, why so pale?

Why so dull and mute, young sinner?
Prithee, why so mute? Will, when speaking well can't win her, Saying nothing do't? Prithee, why so mute?

Quit, quit, for shame this will not move: This cannot take her. If of herself she will not love, Nothing can make her: The devil take her!

#### TO LUCASTA, ON GOING TO THE WARS

These verses of Richard Lovelace are justly famed for the last couplet, which is so often quoted.

TELL me not, sweet, I am unkind, That from the nunnery Of thy chaste breast and quiet mind To war and arms I fly.

True, a new mistress now I chase, The first foe in the field, And with a stronger faith embrace A sword, a horse, a shield.

Yet this inconstancy is such As you, too, shall adore,-I could not love thee, dear, so much, Loved I not honor more.

#### NIGHT

William Blake's verse is very musical and simple. We meet his animals and angels very often.

THE sun descending in the west, The evening star does shine, The birds are silent in their nest, And I must seek for mine. The moon, like a flower In heaven's high bower, With silent delight,

Sits and smiles on the night.

Farewell, green fields and happy grove, Where flocks have ta'en delight; Where lambs have nibbled, silent move The feet of angels bright;
Unseen, they pour blessing,
And joy without ceasing,
On each bud and blossom, And each sleeping bosom.

They look in every thoughtless nest, Where birds are covered warm; They visit caves of every beast, To keep them all from harm. If they see any weeping That should have been sleeping, They pour sleep on their head, And sit down by their bed.

When wolves and tigers howl for prey They pitying stand and weep, Seeking to drive their thirst away, And keep them from the sheep. But if they rush dreadful,

The angels, most heedful, Receive each mild spirit, New worlds to inherit.

And there the lion's ruddy eyes Shall flow with tears of gold: And pitying the tender cries,
And walking round the fold:
Saying: "Wrath by His meekness,
And by His health, sickness, Are driven away From our immortal day.

"And now beside thee, bleating lamb, I can lie down and sleep, Or think on Him who bore thy name. Graze after thee, and weep. For wash'd in life's river, My bright mane forever Shall shine like the gold, As I guard o'er the fold. 

#### ON HIS BLINDNESS

In his forty-fourth year, Milton, whose sight had been failing for ten years, became totally blind. Yet in spite of this he wrote steadily until his death twenty-two years later.

WHEN I consider how my light is spent, Ere half my days in this dark world

And that one talent, which is death to hide, Lodged with me useless, though my soul more

To serve therewith my Maker, and present My true account, lest He returning chide; "Doth God exact day-labor, light denied?" I fondly ask; but Patience, to prevent That murmur, soon replied: "God doth not

Either man's work or His own gifts; who best Bear His mild yoke, they serve Him best; His state

Is kingly; thousands at His bidding speed, And post o'er land and ocean without rest; They also serve who only stand and wait.

#### THE RECONCILIATION

This beautiful little poem is one of the many lovely songs that occur in "The Princess," written by Alfred, Lord Tennyson.

AS through the land at eve we went, And plucked the ripened ears, We fell out, my wife and I,— Oh, we fell out, I know not why, And kissed again with tears. For when we came where lies the child We lost in other years, There above the little grave, Oh, there above the little grave, We kissed again with tears.

#### OLD FRIENDS

WE just shake hands at meeting With many that come nigh, We nod the head in greeting To many that go by. But we welcome through the gateway Our few old friends and true; Then hearts leap up and straightway There's open house for you, Old friends. Wide-open house for you.

The surface will be sparkling, Let but a sunbeam shine But in the deep lies darkling The true life of the wine. The froth is for the many, The wine is for the few; Unseen, untouched of any, We keep the best for you, Old friends, The very best for you.

"The many" cannot know us, They only pace the strand Where at our worst we show us, The waters thick with sand; But out beyond the leaping Dim surge "'tis clear and blue," And there, old friends, we're keeping A waiting calm for you, Old friends, A sacred calm for you.

#### BELIEVE ME, IF ALL THOSE ENDEAR-ING YOUNG CHARMS

This is one of the most popular of Thomas Moore's songs and its musical setting is known to the majority of us. RELIEVE me, if all those endearing young

Which I gaze on so fondly to-day

Were to change by to-morrow, and fleet in my

Like fairy-gifts fading away, Thou would'st still be ador'd, as this moment thou art,

Let thy loveliness fade as it will,

And around the dear ruin each wish of my heart.

Would entwine itself verdantly still.

It is not while beauty and youth are thine

And thy cheeks unprofan'd by a tear,

That the fervor and faith of a soul can be known.

To which time will but make thee more

dear;
No, the heart that has truly lov'd never forgets,

But as truly loves on to the close

As the sun-flower turns on her god, when he

The same look which she turn'd when he rose.

#### THE NIGHT HAS A THOUSAND EYES

THE night has a thousand eyes And the day but one, Yet the light of the bright world dies With the dying sun.

The mind has a thousand eyes, And the heart but one; Yet the light of a whole life dies When love is done.

#### FROM "IN MEMORIAM"

OUR little systems have their day They have their day and cease to be: They are but broken lights of Thee, And Thou, O Lord, art more than they.

Forgive my grief for one removed; Thy creature, whom I found so fair, I trust he lives in Thee, and there I find him worthier to be loved.

I sometimes hold it half a sin To put in words the grief I feel: For words, like Nature, half reveal And half conceal the soul within.

#### WINTER

This charming stanza is by Walter Savage Landor. SUMMER has doft his latest green, And Autumn ranged the barley-mows So long away then have you been? And are you coming back to close The year? It sadly wants repose.

## THE OLD WOMAN AND HER PIG



AN old woman was sweeping her house, and she found a little crooked six-

pence. "What," she said,
"shall I do with this little
sixpence? I shall go to
market and buy a little
pig." As she was coming
home she came to a stile.
The piggy would not go
over the stile. She went

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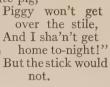
a little farther, and she met a dog, so she said to the dog:

"Dog, dog, bite pig,
Piggy won't get over the stile,
And I sha'n't get home tonight!"
But the dog

would not.



SHE went a little farther, and she met a stick. So she said:
"Stick, stick, beat dog;
Dog won't bite pig,



SHE went a little farther, and she met a fire. So she said: "Fire, fire, burn stick; Stick won't beat

dog;
Dog won't bite pig;
Piggy won't get
over the stile,
And I sha'n't get
home to-night!"

home to-night!"
But the fire would not.

SHE went a little farther, and she met some water. So she said:

"Water, water, quench fire; Fire won't burn

stick; Stick won't beat dog;

Dog won't bite pig; Piggy won't get over the stile, And I sha'n't get home to-night!"

But the water would not.

CHE went a litle farther, and she met

So she said:
"Ox, ox,
drink
water;
Water won't
quench

fire:

Fire won't burn stick; Stick won't beat dog; Dog won't bite pig; Piggy won't get over the stile,

And I sha'n't get home to-night!"
But the ox would not.

o and she met a butcher.
So she said:
"Butcher, butcher, kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the

HE went a little farther.

stile,
And I sha'n't get home to-night!"
But the butcher would not.

SHE went a little farther, and met a rope. So she said:

"Rope, rope, hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home tonight!"

But the rope would not.







### THE BOOK OF POETRY

SHE went a little farther, and she met a rat. So she said:
"Rat, rat, gnaw rope;



"Rat, rat, gnaw rope; Rope won't hang butcher; Butcher won't kill

Ox won't drink water; Water won't quench fire;

Fire won't burn stick;

Stick won't beat dog; Dog won't bite pig; Piggy won't get over the stile, And I sha'n't get home to-night!"

But the rat would not.

SHE went a little farther, and she met

a cat, so she said:
"Cat, cat, kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

BUT the cat said to her, "If you will go to yonder cow, and fetch me a saucer of milk, I will kill the rat." So away went the old woman to the cow, and said:



"Cow, cow, give me a saucer of milk;
Cat won't kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;

Water won't quench fire; Fire won't burn stick; Stick won't beat dog; Dog won't bite pig; Piggy won't get over the stile, And I sha'n't get home to-night!"

BUT the cow said to her, "If you will go to yonder haymakers, and fetch me a wisp of hay, I'll give you the milk." So away went the old woman to the haymakers, and said:

"Haymakers, give me a wisp of hay; Cow won't give milk; Cat won't kill rat; Rat won't gnaw rope; Rope won't hang butcher; Butcher, won't kill ox; Ox won't drink water; Water won't quench fire; Fire won't burn stick; Stick won't beat dog; Dog won't bite pig; Piggy won't get over the stile, And I sha'n't get home to-night!"

BUT the haymakers said to her, "If you will go to yonder stream, and fetch us a bucket of water, we'll give you the hay." So away



you the hay." So away the old woman went. But when she got to the stream, she found the bucket was full of holes.

So she covered the bottom with pebbles and then filled the bucket with water, and she went back with it to the hay-

makers, and they gave her a wisp of hay. As soon as the cow had eaten the hay, she gave the old woman the milk; and away she went with it in a saucer to the cat. As soon as the cat had lapped up the milk:

The cat began to kill the rat;
The rat began to gnaw the rope;
The rope began to hang the butcher;
The butcher began to kill the ox;
The ox began to drink the water;
The water began to quench the fire;
The fire began to burn the stick;
The stick began to beat the dog;
The dog began to bite the pig;
The little pig in a fright jumped over

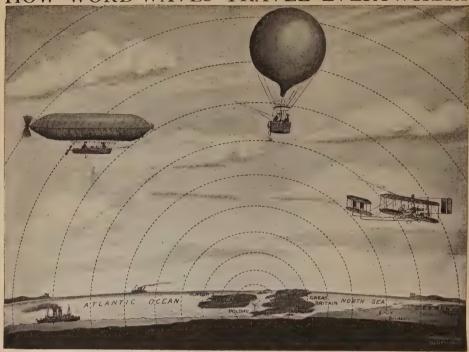
So the old woman got home that night!

the stile:



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## HOW WORD-WAVES TRAVEL EVERYWHERE



This picture shows us in a diagram the wonderful way in which the electric shocks travel through the ether. The wireless waves radiate in all directions, so that in less than one-sixtieth of a second a dot of the message, shown here as being sent from Poldhu, could be received in London, Norway, Berlin, America, or on any ship sailing on the Atlantic Ocean. It is to prevent everyone receiving everyone else's messages that the instruments are tuned. The message could also be received in airship, aeroplane, or balloon at thousands of miles above the clouds if men could get there. It is also believed that they descend into the earth.



This picture shows us, in another way, what we see above—how the wireless waves radiate, expanding evenly in true circles. The boy has thrown a stone into the river, and the waves flow outwards, getting fainter and fainter the farther they get from the spot where the shock occurred. The wireless waves are waves in the ether very like these water-waves, with this difference, that while the ripples of water travel only in a horizontal direction all round, and at a slow rate, the wireless waves travel at a very rapid pace, and in all directions. A better illustration of how these electric waves travel is provided by the light from a lamp or candle. The light waves move from the flame in every direction, and the wireless waves travel through the world in exactly the same way from the centre at which the message is sent off.

The Book of WONDER



## WHY THE WINDS BLOW

THE GALES THAT SWEEP ACROSS THE SEA

WHEN we look at a weather-vane we can tell from what direction the wind is blowing. The revolving part of a weather-vane has much more surface at one side than it has at the other and the side with the bigger surface is blown away from

the wind. Thus the smaller part is at the side from which the wind is coming. Arms are generally fixed to the stem of a weather-vane, and at the end of these arms are the letters N., S., E., W., indicating the four directions of north, south, east, and west. If the arrow of the vane or the head of the weather-cock points north, we know that the wind is blowing from that direction.

It is easy enough to read the weather-vane, and it will perhaps suggest a number of other interesting questions.

Why, for instance, does the wind blow at all? Why does it not always remain still, as it does sometimes in summer? Why does it sometimes blow gently, sometimes strongly, and sometimes rage in a hurricane? Why does it blow sometimes from the north, sometimes from the south, and sometimes from the east or west?

Finally, why do some kinds of wind bring some kinds of weather, and other kinds of wind

bring other kinds of weather?
The science of wind and weather
is called *meteorology*. The word
comes from two Greek words meaning "to raise beyond." The word

meteor now means only a fragment from another world that comes flying into our atmosphere. But formerly meteor had a wider meaning. Anything connected with the atmosphere was called a meteor, and so the science of the weather became known as meteorology.

Now we come back to the first question: Why does the wind blow? For the same reason that smoke comes out of a chimney. That is a curious answer, but it is correct. The real cause of the wind is that air expands and rises as it becomes hotter. If we take an empty bottle, stop its mouth with a cork, and place it in front of the fire, either the cork will pop out or the bottle will burst. The air inside the bottle wants more room.

Now, the sun shines upon this world and heats the air in certain

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parts. The warmed air, being lighter than cold air, rises; and cold air, being heavier than warm air, rushes in to fill up the place which the warmer air occupied before it began to rise. That is the reason why the wind blows, given as simply as it can be given.

Generally, a breeze from the sea begins to blow on to the land a few hours after the sun has risen. Again let us ask—why? Land becomes warmer than water under the heat of the sun, so the air on the land rises, and the cooler air from the sea blows in to take its place, only to be warmed in its turn, and to allow more cool air to blow in from the sea. When the sun has set, the land becomes cool more quickly than the sea, so that the air above the land is denser, or heavier, than the air above the sea, and the cooler land air blows out to sea to replace the warmer sea air that is rising because it is warmer.

# WHY ARE SOME WINDS WARM AND SOME COLD?

Winds become like the surface of the earth over which they travel. A wind which blows over a hot, dry desert becomes hot and dry; a wind which blows over ice-fields and snow-clad mountain-tops becomes piercingly cold; a wind which blows from, or over, the sea is likely to bring rain.

Whatever wind may blow, it has its cause in the inequality of temperature and heaviness in the atmosphere. Nature strives for equality, and warm breezes and cold blasts are Nature's way of

equalizing matters.

## WHAT ARE THE TRADE WINDS?

The trade winds are so called because, in the days before steamships, these winds were really the "drivers" of the world's trade, being the only power which enabled the ships to travel along the great highways of the ocean. The trade winds are winds that are always blowing from the Poles towards the Equator. But in going towards the Equator the trade wind that comes from the Arctic regions does not blow directly south, and the trade wind that blows from the Antarctic regions does not blow directly north.

The reasons for this are interesting. The earth is always revolving, carrying the air along with it. Thus the air at the Poles is revolving with the earth and

at about the same rate as the parts of the earth near the Poles are revolving. As the winds proceed towards the Equator, they go always into parts of the world that move faster than the parts near the Poles, just as in top-spinning the widest part of the top moves more quickly than a spot nearer the centre.

The winds that have come from nearer the Poles do not at once acquire the faster speed, so that the earth beneath them revolves faster than they do, and therefore they come to be not north and south winds, but north-east and southeast winds. The trade winds are most pronounced in the Pacific and Atlantic Oceans because there is almost no land surface to modify them in their passage.

## TATHAT IS A WHIRLWIND?

In some parts of our country the whirlwind or cyclone is much dreaded. The whirlwind is caused by winds coming from opposite directions at the same time. When such winds meet, they make a circular motion with great violence, and, being pressed on by more wind coming behind, may be driven upwards with such force that at sea they may lift a column of water with them, thereby making a waterspout.

At times terrible gales sweep the sea. Before the days of steamships, sailors used to look forward with dread to the autumnal gales. Often they would battle with the elements for days together.

The sails would be torn to shreds by the fury of the wind. The mighty, foaming seas would charge upon the ship like an invading host, throwing themselves with terrific force upon the decks, and sometimes carrying away the masts. The gales are not such a danger to shipping as they once were, for nowadays steamships are independent of the wind for their motive power, and so they plough their way doggedly through the boisterous sea until they reach the desired port.

## WHAT IS A HURRICANE?

The word tornado means turning, and from this we may readily see that it is a kind of whirlwind. It is caused by the air becoming so hot that it rises with frightful rapidity. This causes a sort of vacuum which the air all round rushes in to fill. As the air is carried up it becomes cooler, expands, and forms a

cloud, which spreads itself outward in the sky so that the tornado looks like a huge funnel hanging from a heavy black cloud. The force of the mad dance of the currents as they meet carries the tornado onward, and its appearance as it whirls along its path of destruction is terrific. The motion of the currents usually commences close to the ground, but a tornado may be carried along some distance up in the air. The speed with which it moves is so great that it sweeps everything before it; but happily it takes a much narrower path than a whirlwind does, and as a rule it does not last long.

Tornadoes are most frequent in the Mississippi Valley and in the southern

## THAT IS A CLOUD BURST?

A cloud burst is also caused by a whirlwind. Sometimes the currents of hot air which rush up from the surface of the earth are met in the upper regions by a current of cold air. When this happens the moisture which the hot current has carried up from the ground rapidly becomes condensed and falls to the earth again in a sudden deluge of rain. This is called a cloud burst.

# IS IMPURE AIR LIGHTER THAN PURE

We are prone to be misled on this point, for other things affect the weight of air besides the kind of stuff that is in it: and one of the most important of these things is its temperature. It is true that in a room or church or theatre the impure air is lighter than the pure air, and therefore it ascends. though this is true, it is not true that impure air is lighter than pure air. The impure air made by human beings or animals, or by fires, gas-jets, lamps, or candles, is hot because it is made by the process of burning, whether inside our bodies or outside them, and that process produces heat. Now, the hotter the air is, the lighter it is.

But if we were to wait until this impure air had cooled we should find that the impure part of it was heavier than the air. The most important gas in impure air is carbon dioxide, and this is heavier than ordinary air of the same temperature. Thus, in caves and mines where carbon dioxide is formed, it always tends to lie as low as possible. **~~~** 

This is a fact which every miner knows; and it is a very interesting experiment to lower a lamp down an old mine, or a well, and find when it has dropped a certain distance it goes out because it has reached the level of the carbon dioxide.

#### OES CHANGE GO ON IN OTHER WORLDS?

We know from our study of the surface of the earth that in the course of long ages it has changed very much. But men have been inclined to suppose that the skies do not show any change except in the position of the stars. However, when we study the sun and the planets by means of powerful telescopes, we find that all sorts of slow changes are going on in the heavenly bodies. Perhaps sun-spots need not be counted, as they come and go, and no one can say that there is any evidence of any changes in the sun going on steadily in one direction. But there is no doubt as to changes in at least two planets,

Jupiter and Mars.

On the surface of Jupiter, the giant planet, there is a curious marking called the great red spot; and during the years that this has been watched it has certainly shown changes in shape and size and color. They are, indeed, much quicker than the changes on the earth that happen at the present time; but the surface of Jupiter is much hotter than the surface of the earth, which has mostly become set and rigid, while on Jupiter the surface is more fluid, and, indeed, so hot that it probably gives out some light of its own still. As for Mars, it shows many changes both in large features and in small. Considerable areas of Mars, which must once have been ocean-beds, are now certainly dry.

### WHY DOES YEAST MAKE BREAD RISE AND BISCUITS BUBBLE?

Yeast is a simple kind of living plant which produces a substance called a ferment, that has the power of causing certain chemical changes in sugar. When yeast is used to make bread, the results all follow from the fermentation of sugar. Sugar is an extremely complicated substance, containing kinds of atoms-carbon, hydrogen, and oxygen. When it is fermented the sugar is partly burned—that is to say, the ferment takes a certain amount of oxygen from the air and adds it to the sugar, which is decomposed and turned

into something else. If anything made of carbon, hydrogen, and oxygen is completely burned, the result will be carbon dioxide from the burning of the carbon, and water from the burning of the hydrogen. In this case the burning is not complete, but still a good deal of carbon dioxide is formed, and this makes the bubbles which form in the dough, and cause it to rise. A good deal of it escapes into the air, but much is caught, and so the bread is made.

The other thing which results from the fermentation of the sugar is alcohol, which is also a compound, though a much simpler one, of carbon and hydrogen and oxygen. For this reason the process we have been describing is usually known as the alcoholic fermentation of Practically the whole of the alcohol flies away into the air and is lost.

### WHAT IS THE DIFFERENCE BETWEEN A FRUIT AND A VEGETABLE?

In ordinary talk we usually make a distinction between fruit and vegetables, but most people could scarcely say what the difference really is. living creatures are divided into two great classes, animal and vegetable, and every kind of fruit belongs to the class

of vegetables.

Still, though an apple or a strawberry is just as much a vegetable as a cabbage or a potato, we can find a distinction between them. Indeed, students of plants use the word fruit in a definite way. Many kinds of plants do not produce a fruit at all, but all the higher plants do, even including the greatest trees. The fruit of a plant is that part of it which contains the seed. Indeed, the fruit and the plant exist in order to produce the seed; when we study the history of the fruit we find that it always comes from the flower. The purpose of the flower is to form the seed; and then the flower disappears and we have, instead, the fruit, which holds the seed for its destiny.

Thus some of the things that we usually call "vegetables," such as tomatoes and cucumbers, are fruits in the proper sense of the word, because they bear

the seed.

### COULD A MACHINE GO ON FOR EVER?

This is a new way of asking the old question whether men can find what is called "perpetual motion," though that

phrase is not good to express what is meant. The whole universe is a perpetual-motion machine. Formerly many men thought they saw signs that the universe is running down, like a clock that was once wound up, and that in time all motion will end. But men see now that when motion disappears it has been turned into something else, and that the motion can be got out of it again. Therefore we believe that all motion is perpetual, for motion is a kind of power and no power is ever lost, though it may be changed.

When we say that perpetual motion is impossible, we mean something very different. We mean that we cannot get work from power and still have the power which did the work for us. It is never possible to get something for nothing. If a spring is to drive a clock it must become less tight, and then it will need winding again. The power put into it when the clock was wound has gone in the motion of the clock, and perpetual motion is impossible, in the sense that we cannot spend power of any kind and at the same time keep it.

## TATHAT IS GREEDINESS?

People often say that children are greedy, and should be ashamed of themselves. Now, children, and grown-up people too, may often be very hungry, and then will eat a great deal and perhaps very quickly. The question is whether there is any difference between being greedy and being very hungry. There is a difference, and a very real one. When we see anyone eating dry bread, however much or ravenously he eats, we do not say that he is greedy. We simply say that he must have been starved, and is very hungry.

We say that a child is greedy when he wants to go on eating, not because he is hungry, but because he likes the taste of highly flavored food like cake and rich Christmas pudding and candy. This is not hunger at all, for a child or a grown-up person may greedily eat far too much of such things just after

a good meal.

This is really the craving of the nerves of taste, and is an utterly different thing from hunger. We are right to call it greed, and to regard it as unworthy. Some grown-up people are often just as greedy as children, though usually not so 

much for sweets as for other highly flavored foods.

WHAT WOULD HAPPEN TO A PENNY IF IT GOT BEYOND THE PULL OF THE EARTH?

The law of gravitation states that every portion of matter throughout the universe attracts every other portion of matter. Therefore, however far a penny might go in any direction, it could never be beyond "the pull of gravitation." Wherever it was, it would be attracting, and attracted by, all other matter in the universe, including the matter that forms the earth. But a penny might be imagined as going so far that the force of the earth's gravitation might not succeed in pulling it back again, because the attraction of some other body might be more power-If there were no other heavenly bodies, gravitation would, of course, bring the penny back to the earth.

Where the penny would go would depend on its direction. It might be drawn into the moon. If it passed farther away it might be drawn into the sun, or into Jupiter. But sooner or later it would almost certainly pass near some large heavenly body, and be drawn into it. Its actual fate would depend on the force with which it left the earth, for if this were just right, the penny might travel round the earth as the moon does, or form a new planet revolv-

ing round the sun.

### WHY DOES THE COLOR RUSH FROM THE FACE WHEN WE ARE FRIGHTENED?

Plainly the reason why the face of a frightened person is likely to turn pale must be found in the circulation of the blood, which usually gives the face its color. If at such a moment we had our finger on the large artery which beats at the wrist, and is generally called the pulse, we should notice that the beats had suddenly become few and irregular. It is the heart that is beating too slowly, not strongly enough to force the blood along the arteries to the skin.

We may wonder how fear can actually reach the heart and affect its action. The answer is, that there runs down the neck, on each side, from the brain to the heart, a remarkable nerve, called the vagus, or wanderer, because it goes to so many distant places, and one of its duties is to run to the heart and carry orders from the brain. When we turn pale from fear, what has happened is that the brain has sent powerful orders through the vagus nerve to the heart, nearly making it stop beating altogether.

### THAT MAKES PEOPLE FAINT?

When a person who has been standing up suddenly turns pale, sways, and falls to the ground, it is plain that something has happened to stop the working of his brain. Perhaps we forget that our brain must be working all the time, and that if it stopped for a moment we should certainly topple over. is what happens when a person faints; the brain-centres which control the balance of the body, and those which give orders to the muscles of the legs, cease to act.

We can guess the reason of this if we remember that the face of a fainting person is always pale. This gives us the hint that the supply of blood to the head is defective. The heart is not sending enough blood upwards, and so not only the face but the brain becomes pale and ceases to work. All nerve-cells require a continuous supply of blood, or they will cease to work. There is no other kind of cell that so quickly exhausts its nourishment.

We may go farther back and ask why the heart is not sending enough blood to the head. Many reasons are possible. Too much blood, for stance, may be going elsewhere, the heart may be weak or poisoned by our breathing foul air, or the blood may be too poor in quality to do its work properly.

### WHERE DOES OUR WARMTH COME FROM?

As we talk of warm clothing we might think that our warmth came from our clothes; but, if we think a little, we shall agree that our clothes, at most, can only keep in the warmth, which comes from somewhere else. Sometimes, it is true, our bodies get warmth from something outside of them, from the sun, or a fire, or in a hot bath. But we should be very badly off if we had nothing else to depend on for keeping up the heat of our bodies.

We make our warmth ourselves, and it all comes from our food. Almost everything we need as food can be burned if it is dried, and, though it is certainly not dried in the body, it can

be burned there. The foods which burn best outside the body are those which furnish most of our warmth inside it. Such foods are fats and oils, sugar and starch. If necessary, our warmth can be got from the burning, inside the body, of such foods as meat and white of egg; but this is a very wasteful way of getting it, and, indeed, the reason why we take such foods as fat and sugar is to save the others and to supply the warmth of the body in the safest way.

Of course, all burning requires oxygen, and half the credit of producing our warmth belongs to the air we

breathe.

### WHAT MAKES THE NEW ELECTRIC LAMPS SO BRIGHT?

During the last few years the small electric lamps used in houses have become much brighter without costing more for the electricity that we use. This is because a new kind of material has been employed in making them. In all incandescent electric lamps, the principle is to send an electric current along a very thin wire which is kept away from the air. The wire is so thin that it offers great resistance to the flow of the electricity, much of which is turned into heat, and makes the wire glow. If the wire were exposed to air it would quickly burn away, but the lamp is carefully made so as to contain practically no air. If the glass is broken the wire burns and snaps in a moment.

The brightness of the light depends largely upon the particular material of which the wire is made. The feature of the new lamps, now so much used, is that, instead of having a carbon wire, they have a wire made of one or other of three rare metals, named osmium, tantalum, and tungsten. The last appears most satisfactory, but the wires are very fragile and often break. This difficulty will, no doubt, be overcome.

## ARE HIGH HEELS HARMFUL?

No doubt many people wear high heels to their boots and shoes without much harm. The human foot is beautifully made for its purpose. It has a wonderful arch, which is elastic, and can give a little, and then rebound when pressure is placed upon it. This gives the spring and grace to the walk of people whose feet are in good order. But when people wear high heels they

alter the line down which the weight of the body passes through the foot to the ground. Instead of passing down behind the arch of the foot, it passes through that arch, so that people who wear high heels cannot walk naturally, and tire of walking much sooner than they otherwise would.

It is believed that, in some cases, people may hurt their brain and nerves by wearing high heels, for every step means much more of a jar to the body than if the shock were taken up by the spring of the foot. Then, again, people who wear high heels, and throw the weight of the body too far forward along the foot, are likely to have corns and ingrowing toe-nails, and to get the joints of some of the toes made very stiff.

## DOES A FISH DRINK?

If any living thing is completely dried, it either dies or else it stops living until it gets water again. All living things must drink in one way or another. We know, also, that the water taken in is quickly spoiled, and a fresh supply must be had; a man may go without food for forty days, but he cannot go without water for

Fishes drink, and fishes that live in salt water must drink salt water. But we must not suppose that fishes are drinking when we watch them in an aquarium and they look almost as if they were gulping the water. Fishes require not only to drink but also to breathe, and as they live under water they must breathe by means of the oxygen which is dissolved in the water in which they live.

When we watch them they are breathing by passing water through their gills, which serve them for lungs. The water that passes through their gills yields up to their blood the oxygen they want, but this water is not drunk. When a fish drinks it takes water in by its mouth as we do.

### WHAT DOES SOWING WILD OATS MEAN?

In Denmark in the north of Europe, the Danes call the heavy vapors which steam from the earth just before the season of vegetation Loki's Wild Oats: when the fine weather comes they say: "Loki has sown his wild oats." Loki is the evil being of the North.

We might ask ourselves if this is the origin of the phrase about a foolish and extravagant young man "sowing his wild oats." Perhaps it is; but there is something very interesting to be learned about real wild oats. It is said that if we take a head of these wild oats in a moistened state, and lay it carefully on a table, the next morning we shall find that it has moved some distance away. It is like a rolling

The spike on these oats is exceedingly hard, and does not "give," like the ordinary spike of oats and barley; and so it comes about that the weight of the ears overbalances these sharppointed spikes, and the head of grain goes tumbling and rolling over and over, like a stupid young man who cannot settle down to good steady work.

## DO OUR EYES MAGNIFY?

The real meaning of the word magnify is to make larger, and if we remember this, we must see at once that our eyes do not magnify. When we look up and see the sun or moon or a star, we are looking at a thing so huge that our bodies are nothing at all compared with it, and the image of that thing upon the curtain at the back of our eyes is tiny compared with our bodies.

If we think of an eye, and the size of it, and then think of the fullest possible extent of the curtain at the back of it, we shall understand that, of course, our eyes do not magnify. A thing magnifies when it makes the image of an object larger than that object itself. A microscope does that. It may take a thing so tiny that our eyes unaided cannot see it, and yet throw on our eyes an image as large as that thrown by the sun when we look up into the sky. In such a case it is not our eyes which have done the magnifying.

Many insects have eyes which are of a quite different pattern from our eyes, and which look as if they must really magnify. If they are to do so, they must be used as a microscope is, with the lens-whether a piece of a glass or a part of a living eye extremely close to the object that is to be looked at. If we use our own eyes for objects placed so near as that, we cannot see anything at all, for our eyes are not made for that kind of vision, but are 

really meant for use at considerable distances. That is the use which tires them least.

### WHAT ARE SUN-SPOTS?

Sun-spots were first seen by Galileo, in 1609, over 300 years ago. These dark spots have now been examined not only by huge telescopes, but also by having the light from them studied separately in other ways. An American astronomer has found what sun-spots

They are a sort of magnetic storm in the gases that make the atmosphere of the sun. Those in half of the sun always twist in the opposite direction from those in the other half—as is the case also with movements of the air upon the earth.

The light from sun-spots, when examined, is found to have been affected by a special kind of force called magnetism; and that is one reason why we know that sun-spots are really a sort of magnetic storm of a special kind in the sun's atmosphere.

Magnets on the earth are affected by sun-spots; and it may be that there is also a close connection between sunspots and our weather-or, perhaps, not so much the weather as it is from day to day, as the climate over several years. We know that sun-spots regularly increase and decrease in number every eleven years.

But we must not say that the sunspots move the magnetic needles on the earth, or change the weather. Whatever is the cause of sun-spots-perhaps something not in the sun at allcauses at the same time sun-spots on the sun and magnetic disturbances on the earth.

## WHY DOES ELASTIC STRETCH?

We know that many kinds of material made by living beings have properties which are not found anywhere else. The secret must lie in the way in which the little molecules, as they are called, that make up the elastic are connected. All we know as yet is that, for molecules, they are very large and complicated, and are probably linked together in a very complicated way. We must distinguish between the stretching of a thing like elastic, which flies back, and the stretching of, say, putty, which never flies back.

### WHY SHOULD A METAL COFFEE-POT BE BRIGHTLY POLISHED?

An efficient housewife wishes to serve her guests with hot instead of cold coffee. The metal of a coffee-pot is a good conductor of heat and is of the same temperature as the coffee. If the heat is radiated as fast as it is conducted by the metal. the coffee infusion will lose heat rapidly to supply the metal with heat to take the place of the radiated heat. A rough surface is made up of countless microscopical valleys and hills whose total surface is from two to five times as large as the surface which has had its little hills broken off by rubbing and its valleys made less in number. A small surface radiates less than a large surface by just as much as it is smaller than the large surface. It is not possible, by paint or stain of any kind, to make the surface of a coffee-pot as small as if polished by the use of good muscular rubbing. Test this by placing on a table a smooth-surfaced pot of boiling water at a distance of about four inches from a thermometer, and repeat the experiment with a rough-surfaced pot. You will notice a marked difference in the action of the thermometer.

### WHAT DO WE MEAN WHEN WE SPEAK OF A CALORIE?

If a person wishes good health, his food supply is one of the few things demanding constant attention. If one eats to simply satisfy his appetite, he makes an error. It is now well known that the human body calls for heat and for constructive material-iron, sulphur, carbon, phosphorus, etc. One may eat so as to obtain much heat and little constructive material; or he may obtain much of the latter and little of the former. The heat from food needed by the body is spoken of as 2,000 calories each day. Now a calorie is the heat required to raise the temperature of one gram of water one degree centigrade. We get an idea of the meaning of this expression if we learn from books that a calorie, when put to work. can lift one pound of matter to a height of 40.4 inches. Therefore 2,000 calories can lift one ton of matter to the same height. In other words, our heat requirement per day must be sufficient to enable us to do the equivalent of the work just mentioned. It is needless to mention that we use that amount of heat unconsciously. We should never eat more than we need, for the effect is much the same as would

be produced by putting too much coal in the furnace.

### WHAT IS A BOND, AND WHY ARE BONDS NEEDED?

A bond really means the same thing as a band—something that binds or ties. When we speak of a bond, we mean that a man binds himself by a written promise to pay a certain sum of money. For instance, a man gives a bond that he will do his duty faithfully in a position of trust, such as that of a bank manager. Two of his friends, or a company, go surety for him, which means that if he should be tempted and do wrong the sureties will pay the bank a sum of money for which they have given security. If a man is accused of wrong-doing, he is often allowed his freedom, until his trial, if some one gives a bond that he will ap-

pear when called on.

The form of bond, however, of which you are probably thinking is such a bond as a railway company, or a gas company, or a town or city might give. When a city or town wishes to make improvements in the streets, or to erect new buildings, or if a company is about to build a new railway line or has to build a manufacturing plant, it issues bonds, that is, it sells its promises to pay back the money at the end of a certain number of years, and in the meantime to pay interest. These promises to pay are for a fixed amount of money, perhaps a hundred dollars, or a thousand, or five thousand dollars. The bond itself is a sheet of paper on which is printed or engraved the agreement about rate of interest, time of payment, and the like. Generally a number of coupons are printed on the sheet or attached to it. The coupon tells how much interest will be due on a date on which the bond promised that interest should be paid. Usually there is a coupon for every six months. If a company can not pay its debts, its property is sold and the bondholders are paid.

The nation sometimes borrows money on bonds. When we bought bonds during the war, for instance, it meant that we were lending money to the government, and in return we got a promise or pledge that the country would pay back the money at a stated time. The War Savings Stamp is a sort of baby bond, but interest on it is not paid until the government pays back the money spent for the stamp.

THE NEXT QUESTIONS ARE ON PAGE 6215. 

# The Book of NATURE



Mammoths of the Glacial Age.

## UNKNOV

NDER the lens of CONTINUED FROM 5886 a powerful microscope a drop of water is seen to be teeming with living things. To the tiny creatures in it that drop of water is as an ocean, and to these living specks the larger forms of life in the water must seem as huge and terrible as hungry sharks in the sea are to human beings. That little drop of water looks to the eye as clear and free from life as if it had been distilled from dew upon the petal of some fair rose. That there is in it life of any sort surprises us; that there are so many living creatures there of varying forms and sizes is almost impossible to believe until the microscope enables us actually to see them. If that bead of water holds such mysteries, what of the world in which it has so small

Let us walk around the garden, and, as we look across its sunlit odorous spaces, let us ask ourselves if there are in it any secrets hidden from us. There lie the lawns and flower-beds and kitchen-garden, looking solitary enough. Besides the birds there is not a living thing to be seen. We walk about the garden, and wish our parents had made us zoo keepersa glorious life!—so that we might always have had beasts and birds and Copyright, 1918, by M. Perry Mills.

a part?

reptiles about us, instead of this tame garden with nothing in it but flowers, and fruit, and

vegetables, and trees, and creepers, and shrubs. Cabbages do not satisfy the soul when we sigh for crocodiles; lettuces are

a poor substitute for lions; nobody would be content with a geranium when he is panting for a giraffe, or express thanks for a tomato when he vearns for a tiger.

In this discontented frame of mind we wander up to the conservatory, and sniff bad-temperedly at the flowers there. Suddenly a little voice beside us says: "Look, here are some frogs in the tank!" Yes, there they are, merry little things, some of the four hundred frogs which we reared from the early tadpole stage in the previous year, and, to the great horror of somebody, turned loose in the garden.

There is joy in this evidence of life, and it sets us thinking. After all, is this garden such a solitude? Are there not moles, and mice, and voles in any number beneath its surface? Are there not more frogs in the long grass by the edge of the stream; newts in the moist borders surrounding the glass-houses, and possibly a toad or two down in the stokehole of the furnace which warms the houses?

Why is the gardener so carefully washing the leaves of the young celery plants? It is because the leaves are smothered with the eggs of the celery fly. cabbages are studded with the eggs of butterflies; the ants are busy shepherding aphides on the rose-trees. Why are the young peas and strawberry plants so carefully netted off? To keep the mice away. Things look more lively now, and we are less ill-tempered. A great horny beetle, with a host of little ones clinging to it, scuttles across a sunny walk, and we remember that that beetle is one of a multitude of kinds which make their home in the garden. Down in the soil, we remember, there are myriads of insects and lesser creatures. Here is a garden of three acres or less. Well, in it

there are quite half a million fine worms. steadily at work making the soil better. And then there are myriads and myriads microbes in the soil all at work for their own benand Ollrs. there may be as many as 400,000 to a single cubic inch of soil. Things are decidedly looking brighter. We can leave the zoo to

its keepers without further regret; we have got our own little zoo at home, all round us.

That is the sort of experience that any one of us can have. We go growling into the garden as into a place of solitude, quite lacking life, and find that, though we cannot see them, there are more living things in that garden than there are people in all the world. Now, the great zoologists feel at times as we feel. They say sadly to themselves, not that the world is without animals, but that it contains no more new animals, no animals with which they are not all familiar.

## THE INSECTS IN THE WORLD TOO NUMEROUS TO COUNT

They know that they have not been able to fathom the sea, nor to classify all the insects and tiny forms of life, for that no man will ever be able to do. There are more insects, both kinds and individuals, than most of us dream. this is so we can prove for ourselves. Let us ask any of our friends which, in their opinion, would weigh the heavier—the backboned things of the world, or the things without backbones? Ask them to imagine a gigantic pair of scales. In one side let them fancy that they put all the animals-men, elephants, rhinoceroses, hippopotamuses, lions, tigers, all the fierce animals, all the mild-tempered animals: the whales and seals and manatees, the sharks and all the big fish and little fish, and all the birds and reptiles and amphibians—put all those into one scale. In the other, put the insects of the world. Which, let us ask our friends,

will weigh the heavier? Our friends will that the scale containing the backboned animals will easily weigh the heavier. But in the judgment of great authorities, that is wrong; the little things are so many in kind and number that they will outweigh all the rest of the life of the world put together.

In this vast assemblage there are

very many still to be discovered and known. But with the big things it is different. It is as to these that the zoologist grows sad. He has no more secrets to gain, he sometimes thinks. Then some splendid fact bobs up and kills his theory. He is not as wise as he thinks. There are more living things beneath the skies than he knows of. There cannot be very many more living things to be discovered. but not all the list of surprises is exhausted. It took years and years to find the little mosquito which carries disease and death to our countrymen who go out to tropical climates. The mosquito was there in abundance, but the brave men who were devoting their lives to the pursuit of it could not know that the mosquito was at work when they slept, and that when the men were awake the



THE OKAPI, WHICH WAS DISCOVERED IN 1899
Specially drawn by Sir Harry Johnston

# A GIANT LIZARD MAY BE LIVING TO-DAY



The African natives are very emphatic in their stories that a fearful creature, half elephant and half dragon, inhabits the huge swamps of Northern Rhodesia, and Mr. Carl Hagenbeck, the great European importer of wild animals, believed that some creature like the prehistoric brontosaurus really lives in these dismal and lonely swamps. This picture shows what the brontosaurus was like, and the cross on the map marks the place where it is supposed to live. The word brontosaurus comes from two words that mean thundering reptile. See page 14.

evil insect retired to rest. That is a little instance of the way in which members of the great animal kingdom succeed, age after age, in escaping the notice of man.

#### PIGMY RACE, THAT KNEW THE SECRET OF THE OKAPI

Think of it—for thousands and thousands of years Africa has had a beautiful animal called the okapi, yet up to the present moment only a few white men have ever seen one of these animals alive. Until a few years back, any great zoologist would have told us that he knew of all the animals in the Dark Continent; yet here, awaiting discovery, was one of the most interesting creatures in the world—the connection link between the giraffes and the gazelles. When it became certain that the okapi really lived, the American Museum of Natural History sent men out to find one. As you may read in another place, they succeeded in their task, and though they failed to keep one of these beautiful wild creatures alive, it is so well mounted, and its silky coat is so soft and glossy that you might almost walk up to it in the belief that it breathes.

The manner of our learning of such an animal was in itself a little romance. Fairy books and travelers' tales have often told us of tiny pigmy men and women, but nobody believed that such people existed. Dwarfs there have been in plenty, but no one believed that there

really existed tribes of pigmies.

But such men and women have been discovered in the heart of Africa, and Major Powell Cotton, when he got married, took his young bride to stay with the pigmies; and the brave girl-wife dwelt in the midst of the tiny savages while her husband went off into the forest, hunting strange animals. She can never forget the wonder of these people when they caught sight of her brushing her hair. These little people were the only ones who knew of this strange animal in whose existence scientists did not believe. They knew all about its habits. They knew that it eats only one particular sort of food, which grows nowhere but in these forests. They knew how shy and silent and solitary it is; how the scent of a man far away from it will make it desert its feeding grounds and fly for safety deep into the dense undergrowth, where not even the pigmies can follow. But the little men knew that there are 

moments when they can steal up to it, and inflict a deadly injury with the poisoned arrows which they use. were the little people who instructed our wise and daring scientist-hunters that the wise men have not yet learned all the secrets of Nature.

It is worth remembering, too, that this same traveler of whom we have been thinking, stayed some time with cave men and women in Africa. He found men and women and children living in tribes of three or four or five families, clad in skins, and making their homes in rough caves, living exactly as our forefathers lived in savage old Europe, when the mammoth and the hyena and the cave bear were there to share the land with them. These facts help us to realize that not every vestige of the old, old world has yet passed; that there are things still for us to see and knowanimals in the wilds of which we had not heard; tiny men and women in the forest like the pigmies of the story-books; men and women in caves like the ancient Britons; men and women and children and domestic animals amid the eternal ice and snow, living just the lives which men and women lived in the Ice Age.

Facts like these make the thoughtful student wonder whether there are not in the world still more relics of the past which, hiding in the wild, untrodden ways of mysterious lands, have not yet been seen by hunter or traveler. cannot but wonder if the so-called extinct monsters really all died out, or whether there may not still be some survivors. Scorpions exist to-day in much the same form that they have had since scorpions

were first created.

The duckbill, that wonderful animal with furry body, bird's bill, and paddlelike feet, with which it can swim in the water and burrow on dry land, lives today in Australia, unchanged from the form in which its ancestors, which were among the first of all animals, originally appeared. It took years and years to make men believe the stories which the natives of Australia told of this remarkable egg-laying animal; and when at last a white man found the duckbill, and learned the whole story of its life, he cabled home the news, and had it sent from England on to Canada with as much excitement as if a new continent had been discovered.

#### THE CURIOUS TUATERA OF NEW ZEALAND

Then we have the tuatera, a lizard living in the islands off the northeast of New Zealand, which has remained unchanged through ages since it first took its present form. Other lizards have changed enormously, but not the tuatera. There is a greater difference between the tuatera and the ordinary lizard than there is between the ordinary lizard and the serpent. The tuatera is the one creature on earth which still has three eyes. On the top of its head, under a fold of skin.

which makes it useless, there lies that third eye, which all animals are said to have had at one time. In the young this can be clearly seen through the skin.

Now. inquiring naturalists say to "If themselves: these two creatures, together with the echidna, or spiny ant-eater, another practically unchanged animal, can have lived unaltered through all these millions of years, are there not some other animals still alive surviving from the old days?" And, believing that there is something go, or send men, it. It is a into the wilds to

find the answer to the question. One of the most exciting chases was one undertaken not many years ago to find the giant sloth of Patagonia. It had a body as big as an Elephant's, and when it sat up on its mighty hind legs to pull down a tree-top to eat, it was fourteen feet high. These giant sloths were the animal lords of South America at the time when the mastodon and mammoth lorded it over North America. We cannot tell why they died out. One belief is that the enormous number of guanacoes, camellike creatures vhich abounded in America, by constantly biting off the young

shoots of trees, killed all the forests in which the sloth lived. Goats killed the trees of all the hills of Greece and the plains of the Mediterranean countries. making all barren. Guanacoes may have done the same for that part of South America in which the sloths lived. That. however, would not explain the disappearance of the horse. There were once myriads of horse-like animals in South America, but when the first white man landed there, there was not a horse in the whole continent. These are mysteries for which we cannot account.



THE GIANT SLOTH in the theory, they for this monster in Patagonia, but were unable to find the corresponding to the corresponding

#### OES THE GIANT SLOTH EXIST?

Anyhow, naturalists sent out an expedition, fully believing that somewhere in the remote parts of South America the giant sloth still exists. The expedition was not successful; but we now know that the great monsters lived in caves with men, and that men and women and children made pets of them; for after all these ages we find the very grass which the men cut for the sloths turned into withered hay, in the caverns. It is not now believed that any of these strange animals are still in existence.

We got all our news about new animals from natives, therefore we are bound to pay attention to stories which come again and again to us from natives occupying quite different parts of the same country. The natives' tales of pigmies and cave men, of the okapi and of the duckbill, were long disbelieved; but, as we have seen, they were true. This fact weighs with the men who believe that there may be truth in the marvelous stories which are told of a fearful monster living to-day in the swampy heart of a great part of Africa, called Rhodesia, into which it is impossible for white men to penetrate. <del>~~~~</del>

## A STRANGE ANIMAL THAT MAY BE ALIVE IN AFRICA

The story was first heard from natives in Africa a good many years ago, by a trustworthy traveler named Menges. came up again some years later when Carl Hagenbeck, the great importer of wild animals, received two different reports to the same effect. One of his own hunters, who had been in Rhodesia in search of animals, heard of it; and an English traveler, who had entered and left Rhodesia by a different route from that taken by Mr. Hagenbeck's representative, also heard of it. The natives described it as a huge monster, "half elephant and half dragon," dwelling in the great swamps in the interior, which

hundreds of square miles in extent. There drawings of such an animal in certain caves in Rhodesia; which suggests that the natives either have wonderful imaginations, or have actually seen such a creature. We know that in olden times they made drawing on stone and ivory, and on the walls of their caves, of reindeer, bears, mammoths, and other animals then living, and we find skeletons of the animals

they drew, mingled with the remains of the men who scratched the pictures on the walls and on ivory.

Mr. Hagenbeck believed that such an animal as this monster might be found in the great and silent swamps of Rhodesia, and he sent an expedition to hunt for it. The hunt failed, for the men were laid low by terrible fevers, and attacked by bloodthirsty savages. though he failed on this occasion, Mr. Hagenbeck, in a book that he wrote, called "Beasts and Men," said that he hoped yet to prove that this animal does exist. He thought it must be like the extinct brontosaurus. This was an animal sixty-five feet long, and weighing over thirty-five tons. It fed on the vegetation of swamps, and lived half in the

water and half on land; which, of course, is just the sort of life that would be led by this monster of which the Rhodesian natives tell to-day. Monsters such as this, and others still more fearful, once wandered over all the earth. Some of them must have lived on for ages after man appeared. Traditions of these dreadful beasts were handed down for centuries of generations. Their echoes still come to us in stories like Beowulf and St. George and the Dragon.

There are those who hope that some day we shall find that the quagga, that relation of the zebra which is supposed to have become extinct quite recently, is not dead; that somewhere or other, two or three lurk secure and unsuspected

by the deadly hunt-Men still go wearily seeking the moa, the giant bird New Zealand. of fully believing that the natives are right when they say that here and there, in the heart of the New Zealand mountains, these feathered giants still live. The same hope animates those who believe that somewhere in the less frequented islands of the Indian Ocean a dodo or two may linger in safety. Perhaps the most romantic faith of all



THE TAKIN, NOW IN THE LONDON ZOO

A creature from Tibet, was unknown until recently.
This photograph is by W. P. Dando, F. Z. S.

is that of the men who hold that the mammoth still exists in the North. Indian hunters from time to time bring back reports that far up in Alaska, almost at the coast of the Arctic Ocean, a solitary herd of mammoths still lives and flourishes. New things do come to light. It is not many years since Europe saw for the first time a takin, an animal which comes between the goats and the antelopes. The animal is too big, one would have thought, to have escaped attention. It is three and one-half feet high at the shoulder, and has great horns, with which it can kill a man; but because its home is mysterious Tibet, a land into which, until lately, it was dangerous for Europeans to go, until recently it was unknown.

action of swamps, and fived fian in the The Next Nature story is on page 6661.

## NGS TO MAKE THINGS TO DO



## GARDEN MERRY-GO-ROUND

ALL boys and girls love to ride on a merryand perhaps go-round. some will be surprised to

hear that a very good merry-go-round can be made and fixed up in the garden by any boy who is handy with tools; and what boy is not? Nearly every boy, too, has his own tool-box that he uses constantly.

We first of all get a stout post about seven or eight feet long and six or seven inches in diameter, or, if it is square, with sides of six or seven inches. Such a post can be bought quite cheaply at any lumberyard, or a carpenter will get it for us.

We sink this wooden post about four feet in the ground, pressing in the earth well all round. The top of the post must be made quite smooth and level, and on it we balance a long, stout plank. This should be from eighteen to twenty feet long and

two to three inches thick at least.

In the middle of the plank we bore a round hole, sufficiently large for a bolt to go through. It is this bolt that will hold the plank down upon the upright post, while at the same time allowing the plank to work easily upon it. Of course, while the hole has to be slightly wider in diameter than the diameter of the bolt, it must not be so large that the plank will be able to slip over the head of the bolt. And we must remember as we bore the hole that the bolt itself will work out the sides, so that it can be quite tight-fitting at first.

The plank is placed in position on the post, and a hole having been made in the post to receive the bolt, this is screwed or driven home, so that only sufficient is left above the plank to allow this to work round easily on the post. The bolt should be a long one, some twelve or fifteen inches in length, or it

will work out of the post.

At right angles to the plank, and about three feet from the ends, pieces of wood should be fastened, as in the picture, to serve as handles, by which those riding upon the merry-go-round can support themselves.

All that is needed now to make the merry-go-round CONTINUED FROM 5923 quite ready for use is some soap for the top of the pole, to go between it and the

plank, and enable the plank to slide round

The method of using this home-made merry-go-round is obvious. Two boys or girls take their places—one at each end of the plank—and then, by using their feet as levers, send the plank round and round faster and faster; it is, of course, necessary to hold on firmly. There is more fun to be had out of a merry-go-round made in this way than even out of a see-saw.

If the merry-go-round is intended for big boys and girls, the upright upon which the plank is to work should be larger than that suggested at the beginning of this article. It should be twelve inches in diameter, and in fixing it in the ground it would be well to make some liquid cement and pour this round the post, leaving it to set. In this way the post would be held firmly in the ground, and not be likely to work loose.

Where there are many children who usually play together, the fun can be more than doubled, by making another plank cross this one at right angles. The two must be firmly bolted together-it is not wise to use nails as they are likely to pull out -by a least four bolts through both planks. By adopting this plan, four can ride at once. and as the merry-go-round flies around we seem to see only a tangle of arms and legs and hair, and the shrieks we hear show how much fun all are having.

Of course, this post and one plank can be used for a see-saw, as well as for the merrygo-round. When used for this purpose, however, the hole in the plank must be a little large, so that the bolt will have plenty of room, or else our see-saw will not allow the plank to go down quite far enough. Also the sharp edges of the post should be rounded off, or else we shall find that the see-saw will bump as it goes up and down.

## THREE THINGS FOR CLAY MODELING

THE familiar things appearing on this page are intended for clay modeling. They can be easily made from the instructions given here. They are intended to be carried out to a fairly large scale, and, instead of forming

them out of spheres or cylinders, as we have done with plasticine, we shall build them up bit by bit to the required size on our

Let us take the first exercise—a simple rosette

with four petals.

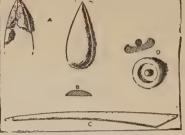
As we are making this a good size—say, eight inches across-we must not try to model the petals in the fingers and then lay them in position for the work must look as

though it were united to its background. It is to be definitely semi-relief, and this will not be the case if it is detached from the background

process. Working together, the fingers seem to help one another, and we can keep the outline even. On no account must the work look smeary and ragged in outline, and without great care and considerable patience it will

very quickly become so.
"Take care of the edges" is an important rule for all stages of modeling, especially during the earlier stages of low-relief If there should be work. any tendency to smeariness, the edges may be cleaned up by the aid of a little wooden tool like the shape shown at c. This can either be bought for a few cents or it can

PARTS OF A ROSETTE ROSETTE be made with an ordinary penknife and then rubbed over with fine sandpaper in order to make it quite smooth. Its use is chiefly to clean up the edges of







A ROSETTE

A BUTTERFLY

A BELL-PUSH

in the working. Secondly, it must look plastic -that is, it must have a modeled appearance rather than seem as if it had been "stuck on. Nor must we put a rough piece down and carve out the shape; it would scarcely be "modeling" under such conditions, and the

result would be more suggestive of carving tools than of the pliable fingers.

To begin, mark with dots of chalk the positions of the extreme points of the rosette



and lightly PARTS OF THE BUTTERFLY draw the shape of each petal, making the length about three and a quarter inches. We now break off little pieces from our lump of plasticine, and proceed to build up the topmost petal as at A in the first picture, preserving the outline as we press each piece into position. We shall find it a distinct help to use together the tips of both forefingers during this shaping

the work when they become ragged or smeared, and since its point is fine, to model up those parts which are inaccessible to the fingers. Build up each piece to the section B, which suggests the proportionate depth, or thickness, and make the surface smooth. It is



well to revolve the slate while we model each petal, for we should have the point away from us during the process.

Having completed the four petals, we may PARTS OF THE BELL-PUSH make the centre by rolling a ball

and pressing it so as to make the hollowed disk, D. It should be sufficiently large to fill the central space. Another small ball is then rolled and placed in the centre of the depression.

The second picture shows a butterfly, which, though differing largely from the rosette, is built up in a very similar way. 

## SECOND A TOWER WITH A LOOKING-GLASS SECOND

The head and body, A, should be modeled first to a convenient size, and we ought to have no difficulty with this, as we adopt the same method as we used in making the petals of the rosette. The upper pair of wings must next be done, and, having lightly sketched them in to a proportionate size, we build up the clay to the section shown at B. This section is taken right across the middle of the upper pair of wings. We must notice that all the wings are joined to the upper portion of the body, while the lower part is free of all attachment. We now proceed with the second and smaller pair of wings, a section of which is given at C.

The antennæ are made from very thinly rolled strips, one end of each being curled up

into a tiny ball as at D.

It is true that neither the antennæ nor probably the butterfly itself would be quite this shape, but we must remember that we are decorators—for modeling is largely a decorative art—and decorators, like poets, take a certain licence in the treatment of their subjects. Our picture shows only a much simplified form of butterfly. There are, of course, many types. At E and F are shown sketches of one upper and one lower wing of a different variety, and we shall find it an excellent exercise to make a study of a real specimen.

cise to make a study of a real specimen.

The third model is an electric bell-push.
On our slate we mark a circle of about four inches diameter, and in the manner already described we build up a disk of the section shown at A. This should be made smooth and free from all depressions, excepting, of course, the one at the top, in which the push is placed.

The actual hole through which the push passes can be ignored at this stage.

The disk finished, we have the problem of fixing on our ornamentation. This is quite a delicate process. First, let us look at the sketch of the ornament at B. It consists of simple leaves and berries on a continuous stalk. Now upon our disk we mark lightly with a fine point the position of this stalk, and also the positions of the leaves and berries. We shall see that there are four pairs of leaves and four pairs of berries placed at equal distances from each other. We obtain the positions by dividing the disk up into eight parts, as shown at C in the last illustration. The stalk is a thinly rolled-out strip, placed and gently pressed into position. The berries are tiny balls rolled in the fingers and then pressed into their places.

For the leaves, small pieces must be rolled into the pointed pear-shape shown at D. Each piece is then put in place, pressed, and carefully worked with the finger-tip and tool till it appears to be just a raised portion of the disk. Tiny strips are added for the leaf-stalks. These must be carefully attached to both leaf and main stem. In all fine work such as is required in this exercise the little tools we have introduced will often need to be used, for, however small our fingers are, there are some parts of our modeling to which they will be inaccessible.

To give the roughened appearance of the background it is only necessary to stamp it lightly with the end of a match or similar tool. The centre push is a short cylinder a little thicker than a lead pencil. A hole is bored through the centre of the disk to receive it.

# MEASURING A TOWER WITH A LOOKING-GLASS

THERE are various ways of measuring the height of a tower or tree or house, but one of the simplest is by means of a looking-glass. We take the looking-glass some distance from the tower or other object which we wish to measure, and lay it on the ground,

with the reflecting side upmost, as in the picture, where A B is the tower and C the looking-

We then walk backwards farther from the tower, until we can see the top of it reflected in the glass. Next we have to measure the height

of our eye, D, from the ground, E the length of E C and of C B. It is rather hard to take our own measurement, but if we do not know it or if we have no friend with us, the best way is to notch a stick and measure it afterwards. Use little sticks to mark the positions of E and C, and then pace out or measure the distance with a line or a stick.

Now, in order to get the height of the tower we simply have to work a sum in proportion.

As C E is to E D so is C B to B A. We know three of these measures, so that we can easily find the fourth. Thus, if the boy's eye is five feet from the ground, and

he is standing six feet from the mirror when he sees in it the reflection of the point A, and, further, if the distance from the foot of the tower to the mirror is twenty-four feet, then the height of the tower is twenty feet. It is essential that the mirror be placed on the ground quite horizontally. If we have no looking-



THE LOOKING-GLASS PLACED IN POSITION

glass, we can make a mirror by putting some water in a dark pan or tray, or even a natural pool can be used. In such cases we can move until we see clearly the reflection of the top-of the tree or tower at the edge of the pool. Of course, a pool or tray of water can only be used for the mirror if there is not much wind.

## ITTING A NAME ON A HANDKER

WE all know how very dainty and charm-ing an embroidered initial makes a handkerchief, but only few of us may know how simply and quickly this little addition may be made. And yet a little patience, and a knowledge of two of the simplest embroidery stitches, are all that are needed to obtain the most delightful and pleasing results.

Let us suppose we have never done such work before, and see how to set

about it.

To begin with, we must remember to choose a linen handkerchief and one which is not too fine. Linen is firm to work on, and is not

so apt to pull and pucker as a thinner material, like cambric. It lasts much longer also, and we shall think our work all the more worth while. The next thing to consider is the initial itself. We cannot all draw well enough to sketch one ourselves, and it is not easy to find something suitable to copy from. A good place to search is on the title-page of a well-bound book. The letters on a title-page are designed by good artists, and

are, as a rule, well propor-tioned and very clear. Old hymn and Psalm books are places in which to find really

good letters.

There is a great difference in letters, and we shall, perhaps, have to search through several volumes before we hit upon exactly what we want. must choose one that not only

pleases us and has a pretty shape, but at the same time is not too much curved or overelaborated. The first picture gives us an idea of five sorts of letters to choose. Any of these work out well. The letter should be of a fair size, for the smaller it is the more difficult it will be to work. One which measures from one-half of an inch to three-quarters is the best to start with.

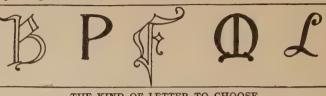
When we have chosen our letter from the

book, we transfer it to the handkerchief in this way. We get a scrap of tracing-paper, trace off the letter, and then blacken the back of the tracing-paper with a . soft lead pencil.

We lay the linen handkerchief on a

drawing-board, and pin the corner out flat. Then we place the traced letter in position, black side down, of course, and go over its outline with a sharply-pointed hard pencil. We remove the tracing-paper, and find that the blacklead on the back has allowed a faint outline of the initial to appear on the linen. With a very black and hard pencil we strengthen this outline, but keep it as fine as possible. Then we moisten the letter with

a sponge, and wait till it dries, or iron it dry. This process will more or less "fix" the lead-marks on to the material and prevent them rubbing off while we are working. A loose, soft make of cotton is best for the embroidery, one which is very little twisted. Several well-known brands are almost equally good for this work.



#### THE KIND OF LETTER TO CHOOSE

First comes the padding stitch, which can best be understood by looking at the second picture. We use the same cotton, and arrange our stitches in the up-and-down direction shown, taking care to place more in the middle than at the edges, where we thin them off. Then comes the filling stitch, which is This goes shown in the same picture. across in the opposite direction to the pad-

ding stitch, as can be seen in the picture. We make these very closely together, entirely covering the padding. It is important in this part of the work to follow the outline very carefully; a stitch that falls just short of, or over the outline will spoil the finish of the initial entirely. We should take care to keep the

material held well down between the thumb and finger of the left hand as we go along, to avoid any puckering or pulling of the linen, and finish off at the back neatly. We must also try to follow the pencil outline very faith-

fully.

If our thread gets at all twisted we must notice this, and at once turn the needle round several times in the opposite direc-The threads, if twisted, will not "bindtogether" tion.

and look smooth on the letter when finished.

The plainest letter will look well if neatly done, neatness and precision being the chief points in this work.

An excellent plan-



DESIGNS FOR THE BORDERS

Padding and filling-in stitches.

if we wish to make our design a little more handsome and distinctiveis to fit round the letter a little border or wreath such as is shown in the third picture. The little patterns are padded and worked in exactly the same way, of course, as the letters themselves.

One great advantage of giving a handkerchief to a friend for a present is that it is always most acceptable. No one can ever have too many, which is not true of all presents.

## HOW TO LOOK AT WHAT YOU DRAW

THE BEAUTIFUL SHAPES OF THINGS

EVERYTHING in life is relative. One boy is spoken of as strong because we know another who is not so strong, or is weak. Every assertion we make is the result of a comparison, and our judgments will be valuable just so far as we have considered the unknown in the light of the known.

The ancient Greeks considered drawing and writing as essentially the same process, and they used the same word for both. And if Pharaoh wanted to proclaim that a hundred ducks were consumed at one meal in his Court he employed a draughtsman to register the fact on a frieze by picturing a row of cooks occupied in preparing the hundred ducks. Writing is then only a later development of

and the other shut out. When we wish to draw the one, we must watch the other. We are not interested in anything contained in the shut-out space, so that our minds are free to consider only the values and directions of the boundary lines. By watching the shut-out space we see the boundary lines of the enclosed space big and simple. Our interest finally lies with this—the object. We draw an object by looking at the shapes of the spaces beyond it. An object makes a pattern with the background, and it is this pattern that we must draw. For this is what we call the music of shape.

Place a cardboard box upright on the table. Behind it put a sheet of white paper covered



A picture showing the beautiful harmony between a mass of buildings and the surrounding country.

A picture showing the simple musical shapes of a street scene.

drawing, which has its alphabet just as writing

We have found that the alphabet of drawing consists in the true lengths of lines coming against each other, and that the shapes enclosed correspond with the syllables of words or the phrases of music. We have seen that it is necessary to study a form before we can attempt to draw it. Drawing is recording facts we know. It is in its truest sense "memory drawing." We are not copying; we only refer to the object when we find that our knowledge of it is hazy. Our hands will do their work faithfully and beautifully if our minds are fixed upon realising the whole, and not dwelling upon details.

Boundary lines not only enclose shapes within them, but are division lines between surfaces. They belong to two sets of shapes, one enclosed with upright lines, from one to two inches apart. Notice the position of the outer corners of the edges of the box in relation to the vertical lines—that is, that they are not all equally high. Mark these points on the background, and join them. The far edge of the table appears to touch the object one-quarter, perhaps, or one-third, from the bottom. Mark on the background the exact position, and draw the edge as it stands out from each side of the box. Darken the background beyond the box.

Let us step back and survey our work. We shall see the white box standing out against the darkened paper. If we remove the box we shall see its outside shape appear as a white space on the dark background; just what we saw when the box was there. Now let us examine this

#### -THINGS TO MAKE AND THINGS TO DO

drawing of the external shape of the box. First let us examine the values of its boundary lines. Which line is the longer—the line of the table or the line of the left-hand side of the box?

Are they of equal length? If not, how much is one longer than the other? A half, a quarter, and so on. In this manner compare the lengths of every line on the background, remembering that slovenly observation is of no value at all.

Now we will examine the shapes on the background. Let us turn to the left-hand side. We have here two sides of a shape given us; they are the edge of the table and the left

edge of the box as far down as the bottom of the background. Is it as long as it is wide? Is it longer, and, if so, by how much? That is, would it make a square or an oblong? Decide what the shape would be. Treat all the boundary lines in the same way, completing in imagination their suggested shapes. We must Every line is relative as regards its direction as well as its length. When we draw a line, we can judge its inclination accurately by looking beyond the object at something else which has lines of whose

direction we are quite sure, such astheverticallines of the legs of desks, wall-panels, doors, and window-frames. now do away with the striped background, and glance beyond the object you are drawing to see how much the direction of its boundaries varies from the vertical of some known upright line.

In this manner picture on your paper other objects, such as an open box, chairs, and toys.

Place several of them together to make a group, and draw the pattern it forms upon the background. Then make a second drawing, and fill in the internal details, shape against shape.

Take a spray of privet, and place it before a sheet of white paper. Draw this on





Pictures showing that the attitudes of figures are best expressed

by their simple, beautiful shapes against their backgrounds.



Pictures showing the musical shapes, or patterns, which objects and their backgrounds make.

always ask ourselves if the completed background shapes would make a square, an oblong, or a triangle, wherever a space appears beyond an object or a group of objects. We must look from one to another, and judge their relative values—their values, that is to say, as they compare one with the other.

When we have drawn these background shapes, we find that we have the perfect external shape of the object before us. It is far more truly represented than it could have been had we looked at the *object* while we were attempting to draw it.

Mere mechanical, mindless copying is impossible when drawing in this way. During the whole time we are judging and finding out the different values of the shapes. They are no longer prisoners waiting to be judged: they are becoming friends. Each must receive from us quiet and courteous judgment.

tinted paper with white crayons. Fill in the background with the white crayon, or draw it with pencil on white paper, and fill in the leaves. Now we have before us dark patches on a white ground, which are just like the dark leaves in front of the white paper. Look carefully, and compare the shapes of the background between the leaves. We might mark them one, two, three, and so on, beginning with the largest or with the smallest. Call the roll of these soldiers without fear or favor. Draw other sprays of leaves and flowers in the same way. Where several leaves overlap, draw the shape of the mass, not the separate leaves.

Let us try to tell another exactly what kind of music was in the heart of the architect when he planned the houses opposite to us. To do this we must not look at the details on their fronts, but at the sky-line, and note the shapes made on the sky background. If they are all alike, the music is monotonous; it is the broken sky-line, with its variety of shapes beyond, that gives us such pleasure when we visit old-world towns and villages.

So let us carefully compare edge with edge of the shapes of the sky beyond the buildings, and decide what each shape would make if completed. Draw these, and fill in the background neatly with white crayon, enclosing the whole as in a frame. Make a picture of it. Our buildings are now standing out as a dark mass against the light sky

As we walk into town, or ride on the top of a tram or bus, let us look at the sky-line before us. We notice what a broken line it is. We see church spires standing above the rest of the houses like stately lilies among the lowlier garden plants, or a beautiful town-hall with its turrets and towers and gable windows.

As we look down the streets where the skyline is evenly broken, our eyes soon refuse to dwell on them. We are glad to look up to the sky where the shapes are more varied and the music more joyous. Let us glance from the monotonous sky-line down to the houses below; we find them built all alike. There is very little that is happy or musical about them, whereas we find that the houses which

had beautiful shapes against the sky have also

pleasingly-shaped windows and gables.
We now know how to read the story that is written on the face of the sky. When we visit another town, we shall know more of the people of that town than they think they are telling us. We know either that they are telling everyone that they love this beautiful music of shape, and will have it about them; or else that they have either never heard of it, or do not care about it. Ugly, unmusical surroundings make us unhappy and miserable. This is not right; we are meant to live joyous lives. We want our towns and villages to be beautiful, and we now know wherein this beauty and music lie. By dwelling in the City Beautiful, our own work, too, will be beautifully done.

#### PLAY LESSON

Draw the sky-line of the streets near your home. Draw every one through which you love to look. You will soon find out why they attract you. Make a picture of your school: you may find that it is a beautiful building. If we look out of the winding of the second of the building. If we look out of the window as night is coming on, we shall see the houses as a dark mass cutting against the lighter sky. Draw these as you see them.

#### AN EASY-MADE SHELTER

IF we are out scouting or camping, and wish to make quickly a shelter in which we can sit and rest, at the same time being shielded from wind or rain, this can be done quite easily. We stand three branches together in the same

way as soldiers stand their rifles when they are resting, and of course, if the ends of these branches are forked, they can be supported against one another all the more securely. Then, leaving an opening in front, as seen in the picture, we pile up small branches and brushwood round the uprights, pressing them closely together, until we have a shelter like that shown.

By sitting in this we can get protection from rain and wind, provided, of course, that we make the opening face the direction opposite to that from which the wind is blowing. Another way to make use of branches and brushwood if we are caught far from camp on a canoeing trip, is to draw up the canoe and tightly pack it with soft

leafy branches, leaving only enough space for the body. Great warmth can be thus obtained. In open country and wooded districts, branches and brushwood are always accessible, and to build a shelter like this is the work of a very few minutes. It is also very

useful as a shady nook.

A clever boy can, from this picture, get an idea for a little shelter that is well worth building as a permanent resort in the garden. If straight branches be selected to pile up against the uprights, and they be fastened

with tarred string, a little summerhouse will be formed that will prove useful and at the same time, so far from looking unsightly or crude, will have a neat, rustic appearance.



The shelter complete

## HOW TO MEASURE THE DIAMETER OF A BALL

is a way of doing this which is quite simple. Take two blocks of wood, or two boxes, a little higher and wider than the ball, and stand these on a table with their sides pressed flush against a wall or against a larger box standing on the table. In between the two boxes or blocks place the ball as shown in this picture and still keeping the <del>~~~~</del>

TO measure the diameter of a ball exactly sides flush against the wall, bring the two may not seem a very easy task, but there boxes together until they touch the ball.

All we have to do now is to take a rule and measure the distance between the two boxes, taking care, of course to keep all the objects quite still and level. With the diameter thus accurately measured, we can obtain the other dimensions in the usual way, as, for instance, multiplying the diameter by



3.1416, or, roughly, 31/4, to get the circumference.

## A GARDEN GROWN ON A WALL

THERE is many a naked and unsightly wall in town and country that might, with little trouble, be beautifully draped in Nature's garments of restful green, with patches of blue and red and yellow. Some of the most pleasant memories of those who have traveled in England are the walls of the old cloisters long since fallen into decay. No one who has been in Peterborough can ever forget the walls around the cathedral there. There are some old walls in New England which are equally beautiful.

Some walls, of course, have their covering of Virginia creeper, and, in the proper season, their thick and gorgeous mantle of sweet peas or nasturtiums, but the roots of these plants are in the ground, and it is not always convenient to have a flower-bed at the foot of

the wall.

#### A WALL COVERED WITH BLOSSOM

Far more interesting than any such covering as has been mentioned is a real wall garden, with plants actually growing on the wall, and if we will take a little care with this novel garden we can get a rich harvest of blossom from early spring right through to late autumn.

The best kind of wall for a garden is an old stone wall, from whose joints the surface mortar has crumbled and fallen and made crevices into which the roots can find their way and take firm hold. We can prepare the wall by knocking out joints and corners of brick to make little artificial pockets here and there where we wish to have our plants.

there where we wish to have our plants.

All along the top of the wall, too, we can form pockets by placing rough stones together, so as to leave recesses for the mold. Holes made with a chisel, even, are large enough for plants to take root in. The pockets

must be filled with damp soil.

We do not need rare and expensive flowers for our purpose; in fact, we can cover our wall with familiar wild flowers. If, however, we decide to have some of the cultivated varieties of flowers, it will be best for us to raise the seed in a greenhouse, and then when the roots are well formed to plant out on the wall. This is done by lifting the whole plant with the little mass of earth that is held together by the roots, and pressing it down into the moist soil in the crevices or pockets of the wall.

#### PLANTS FOR SUNNY AND SHADY WALLS

Of course, in selecting plants for our wall garden, we must take into consideration whether the side on which the garden is to be is warm and sunny or whether it is in the shade most of the day. For the sunny side some of the dwarf campanulas, or bell-flowers, are excellent. The wall campanulas are particularly suitable. Rock pinks and other hanging-plants like cerastium, alyssum, aubretia, arabis and gypsophila, which, though they grow happily on the level, do best when they use the upright wall out of which to hang.

Seeds and cuttings should be planted in a light soil in June, and placed on the wall as

soon as ready. The sedums or stonecrops, and the sempervivums or house-leeks, are also good. Snapdragons and Iceland poppies are all very useful flowers for a garden, and walflowers are, of course, particularly suitable and effective, as those who have seen the cloister walls of Peterborough Cathedral in spring and early summer well know. These walls are literally a blaze of golden color.

On the shady side the yellow corydalis is easy to grow, and is very pretty with its dainty foliage. Garden primroses and anemones are thankful for a place at the cool wall-foot. London pride, too, looks charming when grown in the wall with its dainty cloud of pink bloom puffing out from among fern-frond masses. The mossy saxifrages, and many of the hardy primulas or primroses can also be grown.

Many alpine plants will grow on an old wall, on the sunny side stone crops large and small,

and a variety of many-colored phlox.

But beautiful and interesting as the wall garden is when covered with flowers supplied by the nurseryman, it is still more interesting and quite as pretty when all the flowers that grow upon it have been collected by us during our rambles.

#### WILD FLOWERS FOR THE WALL

Among the sedums we should secure biting stonecrop, which is very common on rocks and sandy ground; English stonecrop, which is found in similar places near the sea.

Some of the toad-flax family will flourish in a wall garden. The ivy-leaved toadflax, or mother-of-thousands, with its delicate foliage and trailing stems with myriads of lilac or white blossoms is a very charming plant for a wall, and the common yellow toadflax, better known as "butter and eggs," will also grow well on a wall, as many of us can testify.

One of the most showy and handsome wild plants for a wall garden is the red valerian. It is often grown as a garden flower, and will thrive nowhere better than on an old wall.

The money-wort, or creeping jenny, with its trailing stems, shining leaves, and bright yellow flowers, is a plant that no wall garden should be without, and has become naturalized in America. It blooms from July to September.

Willow-herb, or golden loosestrife, the wild pinks, the sea-pink, the early saxifrage, the purple mountain saxifrage, the yellow mountain saxifrage, the wild hop, the white arabis or rock-cress, viper's bugloss, and the yellow alyssum are all familiar wild flowers that are easily found and excellently suited for a wall garden.

Some may prefer to cover a shady wall with ferns, and certainly small ferns look nowhere better than when growing in such a position. Many varieties will grow on walls, at the foot could be grand tufts of hartstongue with its cool pale fronds to foster the feeling of shade, male fern and osmunda. A little higher up maiden-hair spleen wort and the common Christmas fern would do well.

CONTINUED ON PAGE 6077.

## A STORY-DICTIONARY IN ENGLISH & FRENCH

#### DICTIONARY

Ability means power. Au-delà means beyond. Bedouins are a tribe Arabs who live in the

Beverage means a drink. Common means general, for the use of all.

Conclusion means end. finish. Conduisit is the past of conduire, to conduct, or to lead.

Couvertures means covers. Custom means way of living and acting.

Defend means to guard, to protect.

Emploient is the present of employer, to employ, or to use.

Exhiba is the past of exhiber, to exhibit, or to produce.

Firearms are weapons that are fired by gunpowder, like pistols.

Guest means visitor, a friend staying with us.

Hookah pipes are pipes with long tubes, smoked through water.

Hospitality means the re-ceiving of visitors generously and kindly.

Laine means wool.

Mieux means best. Nous voilà means there we

Privilege means an advantage or pleasure enjoyed by some particular per-

Prolong means to extend. to make longer.

Reclined leaned. means rested.

telling Recounting means over again.

Se coucher means to go to bed.

S'enveloppa is the past of s'envelopper, to wrap oneself up.

Souf peu means in a short

Tous les deux means both

of us. Traitent is the present of

traiter, to treat. Utmost means the highest, the furthest extent.

Vinrent à notre rencontre à cheval means came to us-on horseback.

#### A VISIT TO ARABIA

Frank had been on a visit to Arabia, and he was recounting his experiences to some of his school friends.

"They don't live in houses in the desert," he told them, "but in great tents, and as soon as they saw us coming the old Bedouin and his little son, Hamid, rode out to welcome

"Hamid is a fine little fellow. I don't suppose he has ever played football or cricket in his life, but he is a splendid shot. Their life is so different from ours that Arab boys are taught to defend themselves when they are quite little, and they would rather play with firearms than with any toy you could give them.

"The Bedouins are famous for their hospitality. While you are their guest, they serve you to the utmost of their ability; but you are not expected to prolong your visit after three days, and when you leave they pass you on to some other friend.

"But I think you see the strangest of their customs at dinner-time. We all sat on rugs round a low table, and on the table was a great dish. from which everyone helped himself with his fingers-for they don't use knives and forks in Árabia!

"There was plenty to eatgoat's meat and rice, hot cakes, fresh fruit, and the most de-licious coffee. The Arabs are very proud of their coffee, and it is the privilege of the eldest son to pound the berries for the father to make into a beverage.

"When all was ready, the old Bedouin picked out a choice bit of meat and put it into father's mouth—because he was the chief guest—and then each one helped himself out of the common dish.

"At the conclusion of the meal the men reclined on cushions, and smoked long on over to his corner of the tent, and brought out a couple of our meeting—or to meet other, and before long we were peu nous voilà tous les deux us—on horseback.

both sound asleep."

dans un profond sommeil." both sound asleep."

#### UNE VISITE EN ARABIE

Francois avait visité l'Arabie et racontait ses aventures à quelques-uns de ses camarades de collège. "Ils ne vivent pas dans des maisons dans le désert," leur disait-il, "mais sous de grandes tentes, et aussitôt qu'ils nous virent arriver, le vieux Bédouin et son jeune fils, Hamid, vinrent à notre rencontre cheval.

"Hamid est un beau petit garçon. Je suppose qu'il n'a jamais joué ni au football ni au cricket de sa vie, mais il est bon tireur. Leur vie est si différente de la nôtre, que l'on apprend aux jeunes Arabes a se défendre quand ils sont encore tout petits, et ils pré-fèrent jouer avec des armes à feu qu'avec tous les jouets que vous pourriez leur donner.

"Les Bédouins sont fameux Pendant par leur hospitalité. que vous êtes leur hôte ils vous traitent de, leur mieux, mais votre visite ne doit pas se prolonger au-delà de trois jours, et quand vous partez ils vous passent à quelque autre ami.

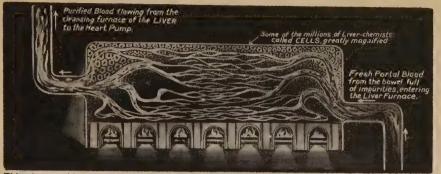
"Mais je crois que vous voyez la plus étrange de leurs coutumes à l'heure du dîner. Nous étions tous assis sur des carpettes autour d'une table basse. Et sur la table il y avait un grand plat dans lequel tout le monde se servait avec ses doigts—car ils n'emploient ni couteaux ni fourchettes en Arabie! Il y avait beaucoup à manger-de la viande de chèvre et du riz, des gâteaux chauds, des fruits frais, et le plus délicieux des cafés. Les Arabes sont très fiers de leur café, et c'est le privilège du fils aîné de broyer les grains dont le père préparera le breuvage.

'Quand tout fut prêt, le vieux Bédouin choisit un morceau de viande qu'il mit dans la bouche de mon père—parce qu'il était le premier hôte—et puis chacun se servit dans le plat commun. Quand le repas fut terminé, les hommes se reposèrent sur des coussins, et fumèrent leurs chibouques; hookah pipes; and when bed- et quand vint l'heure de se time came Hamid took me coucher, Hamid me conduisit à son coin de la tente, et exhiba une paire de couvertures de laine. Il m'en donna une, et blankets. He gave one to me, laine. Il m'en donna une, et and rolled himself up in the s'enveloppa dans l'autre, et sous



thing they are holding, by part of their body, or in some other way. Look at the picture and see how many people you can discover. There are fifty-six, if you find them all In this picture of a village common there are a number of people shown; in addition to those whom we can see clearly, there are a number of others indicated by some-

# The Book of OUR OWN LIFE



This gives an idea of how the blood flows through the liver to be purified on its way to the heart.

The great veins subdivide into smaller, which become finer as they go through millions of cells.

## THE KITCHEN OF JACK'S HOUSE

THE WONDERFUL CHEMISTS AND THE WORK THEY DO

AS we know, Jack's wonderful house is a three-storied one, but it is raised from the ground on Jack's legs, like the houses we see in some places in the Far East; and so his kitchen, or ground floor, is some distance from the ground, and "rises which in the world" as Jack's legs grow and plonger.

This kitchen, which is really the lower part of Jack's body, contains many things which Jack would die without, though most of us have never heard of them. All this is perfectly true, and almost new; and there is so much to learn, that for many years to come, the progress of science in finding out how to repair Jack's house, and in knowing how best to build it up, will largely depend on what we are now learning about various things in Jack's kitchen which have been despised hitherto.

Perhaps the strongest of Jack's many strong points is the number of clever chemists he keeps working for him. As long as he lives they are busy all the time making things which Jack's house could not do without, and which make all the difference to Jack himself. We already know that Jack himself lives in his study in his

top story, his observatory. The ordinary way of saying this would be that the mind lives in the brain, for of course Jack's mind in

for, of course, Jack's mind is the boy himself.

One of many new discoveries which have been made is that all sorts and parts of Jack's house are constantly engaged in providing special materials which reach Jack's brain, and make all the difference to it and to him. So true is this that there is, for instance, half-way up the stairway between Jack's top and middle stories, something called the thyroid, without which Jack would certainly be an idiot. All of the wise people who study the brain intelligently know that they must study the body too; for it is true that the house a man lives in will often make a great deal of difference in the sort of man he is.

Thus, for instance, there are two small private chemical laboratories in Jack's kitchen which we know now are the workshops of clever chemists without whom all the work of Jack's house would stand still. When we find a private chemical laboratory in Jack's house we call it a gland, and we find many thousands of these glands everywhere—those

that make the sweat, those that make the saliva, and hundreds more. The little glands in the kitchen lie pressed one to each kidney, and they are called the adrenal glands, or adrenals, which simply means "to the kidney." The common rule is that the various laboratories in the body have a tube, or duct, running from them and carrying whatever they make to wherever it is wanted to go. Thus little ducts run from the salivary glands to the mouth. But these adrenal glands, like several others found in different parts of the body, have no ducts.

### THE OLD THINGS IN JACK'S HOUSE THAT HAVE LATELY BEEN DISCOVERED

These glands are called the ductless glands, and they have long been a puzzle, and some people have declared that they are nothing but a sort of lumber, which Jack had inherited from some of his ancestors, who lived in a different style from his own, and had use for such things which Jack has not. This idea, that Tack's house is an old curiosity shop, full of rusty and battered relics of Jack's forerunners, has some-thing in it, but a great deal less than many people have supposed; and there are a good many things which have been called useless heirlooms of Jack's which are a great deal more necessary to him than his stomach.

The ductless glands are a case in point. The blood runs through them, and in the case of some of them as it leaves them it carries something which it had not before, and which makes all the difference to Jack. Where that is not so, the blood which comes away is without something which was in it before; and that something is poisonous or dangerous rubbish, which the chemists in the gland have destroyed, usually by burning it up.

### THE TUBE THROUGH WHICH POWER COMES TO THE MUSCLES

The adrenal glands belong to the class which make things, and the thing they make was discovered some few years ago by a Japanese scientist, Doctor Takamine, in New York, though another man found it out about the same time. The thing they make is carried throughout Jack's house, and its business is to give power to all those servants of Tack called the muscles. Without this wonderful substance the muscles cannot do their work, the blood is not properly

pumped into Tack's study, and that means that the ventilation is impaired and Jack gets drowsy and stupid, as we should expect. The working of his brain becomes changed, a doctor would say, because of lack of the adrenal secretion. If the lack continues, Jack dies. This happens in rare cases, when certain microbe burglars break into these glands and smash them, killing the chemists and taking their places.

These are the smallest of the special glands in Jack's kitchen, but in this whole house there are none more important than these tiny bodies, for Jack's life depends upon them. adrenals lie pressed against and above the renal glands, or kidneys. We all know that the kidneys are the laboratories where the chemists who filter the blood, keeping Tack's water-supply pure,

are constantly at work.

Only a short time ago we believed that these laboratories were practically just automatic filters, like those we are accustomed to use for keeping the watersupply of our houses pure. But we know better now, for we have discovered that not only are the cells of the kidneys afive, but they are wise and skilful, and the work done by the kidneys is living work, not mechanical. The kidneys are laboratories, containing clever living chemists, upon whose good work Jack's happiness depends. If these chemists are not working well, Jack is "not quite himself," as we say.

### THE TINY CHEMISTS WHO MUST NOT BE OVERWORKED

People might say that it does not much matter which way we look at all this. But if you think a minute you will see that it does matter; right thinking always does matter in the long run. If the kidneys were nothing but a sort of grating or sieve, we need not fear as to their behavior; but if they contain living chemists, then those chemists can be overworked, like anyone else, and if they are too long overworked they will get weary and become ill, just as any other living thing would. In time they will not be able to work at all. A few years ago doctors used freely to give as medicines all sorts of things which were known to make the kidneys work harder—thinking this only meant that the blood would be filtered through them more quickly than usual. 

But now we know it means that the tiny precious chemists will be overworked; and the new rule is to give nothing to add to their work when they are in difficulties, but to simplify what Jack eats and what Jack does, and so lighten the work of the chemists until they can recover. This means giving far fewer medicines, which is what the best doctors are doing nowadays. And the same is true of every day, for people are learning that if they overeat they are overworking the chemists in their kidneys who deal with all rubbish.

## THE LARGEST LABORATORY

Many times bigger than both the kilneys and both the adrenals put together is the largest laboratory in Jack's house, called his liver. We all know that our happiness and health largely depend on the faithful and skilful chemists in this laboratory, and somebody who was asked: "Is life worth living?" gave an excellent answer with a double meaning: "It depends on the liver." Now, this laboratory is in many ways unlike any other. In the first place, it is huge compared with the others. Its business requires it to deal with all the blood in Jack's body, and to do so at a great rate. All the millions of millions of cells, or chemists, that make it up appear to be exactly the same, and to do the same work if there is need, and from one point of view they are by far the cleverest cells anywhere in the body, because all of them can do so many different things.

For instance, they store up iron for Jack's use, and fat for him to burn as fuel, so that this laboratory is also a larder, a filter, and a fireplace too, as we shall see. They catch or filter and melt down the old red cells of his blood, which are the porters, each carrying a little portion of air for ventilating Jack's house.

### THE GREAT FIREPLACE IN JACK'S HOUSE

In this and various other ways the liver cells produce a stuff called bile, which has all sorts of uses, in its place, but is very undesirable when it gets into the blood, for then it makes Jack bilious—that is, bile-full—and unhappy, and bad-tempered, and yellow-eyed. However, when we have said all this and much more about what the liver ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

does with the blood, we have left out the most important of its duties.

The adrenals contain the chemists who just make a few drops of something powerful and precious. The kidneys contain the careful and discriminating chemists who pounce upon bad things in the blood, and filter them away. The liver contains chemists who pounce upon the bad things in the food, and burn them up. Note that the burning up serves two purposes—a very common Jack's house. It destroys trick in dangerous things, and it keeps Tack's house warm.

But now as to the poisons in Tack's food. The liver is so placed that all the blood running from Jack's bowel, with the food it has picked up there, must pass through the liver before it reaches Jack's great central pump—the heart, from which it is pumped to every part of Jack's house, and especially to Jack himself. None of Jack's other laboratories are in such a position as this; only this huge one is placed on the line of route, so that every speck of food, however well cooked, except only the fat or oil that is to be used by Jack, must pass the test of the chemists in the liver.

## THE SENTINELS WHO GUARD THE WAY TO JACK'S LIVING-ROOMS

Now, the liver may be called the great gate, or portal, inside Jack's house, through which everything must pass before it is admitted to the master's apartments. There are houses in many parts of the world built round a courtyard; and things may drive into the courtyard and be in the house and vet not actually in the house. Now, that is the case with the stomach and the bowel, and with the great gateway, with its chemist-sentinels and furnaces, which is always guarding the way to the master's living-rooms. Thus the proper name for this gateway, or portal, is the portal system.

Without it Jack would be at once overcome and killed by the poisons in his food. No matter how clever the hallporter is, no matter what the teeth may do, no matter how clever the cooks who work Jack's ovens, quantities of subtle poisons pass into the blood from the food, and would overpower Jack in a very short time if it were not for the fiery test they have to pass in his portal

But there the liver-chemists stand, and throw into the fire all that they can of the unsuitable or dangerous stuff brought to them by the blood. We find also that the same is true here as of the kidneys. We can overwork these faithful and unflinching chemists. They will go on till they drop.

But the time perhaps will come when these chemists are overcome; sometimes because of some powerful poison which kills them on the spot. But usually it is just a slow wearing out, due to excess of work with too little time for rest-and this is most likely to come when Tack himself is taking too much

rest and doing little work.

That is what happens when people steadily eat too much, especially of rich, heavy, highly-flavored, unnatural foods, crammed with poisons—especially those people who do little or no muscular work and take none of the exercise which is so bracing to the liverchemists. For a time all goes well, and we see no harm, for Jack's own rooms are not penetrated, and the chemists stick to their work and give no sign. the time comes when these faithful servants fail to do their tasks, and then Jack's end is near, for he can neither do without them nor find others to do their work.

### WHY NATURE MEANT JACK TO BE A TEETOTALLER

The commonest injury done to the liver is by alcohol, as everybody knows: but it is only within the last ten years that we have learned why alcohol does so much more harm than many other things which the liver seems able to deal with easily. The fact is that alcohol. being an entirely unnatural thing in the food, puzzles the liver. The chemists can make little of it, and what they do. when it reaches them, is to send back again in the bile as much of it as they can. while some of what is left slips through their hands and gets into Jack's private rooms. When the bowel gets the alcohol again, it quickly sends it back to the liver; and we now know that this may go on for days, and all the time, of course, the bowel and the liver are being injured. Several other poisons do the same thing as alcohol, getting on to a circular route from which they can only leak away with difficulty; but of all poisons not naturally occurring in the <del>~~~~</del>

food, and thus not naturally prepared for in the body, alcohol is, of course, the

Ouite as much might be said about the pancreas as about any of these other laboratories. It is a wonderful gland, for it has two kinds of chemist-cells, one kind making a fluid which runs through a tube to the bowel, where it performs very useful work: and another kindfar fewer in number—behaving like the adrenal chemists, and giving to the blood some mysterious product which enables Tack's furnaces to burn up the sugar in the food.

# THE BRAIN OF THE KITCHEN OF JACK'S

Then there is the great telephone exchange, lying behind the stomach, which specially controls the whole of Jack's basement, and is in a large measure independent of the three exchanges in his top story, of which we have already told This exchange is often called the brain of this part of Jack's house, so

important is it. We know what Jack's stomach is for, and how it receives food and drink from Jack's front door by means of his "red lane," and how it sends on the food, partly cooked and digested, to the bowel, a tube many feet long, which the blood visits, and from which it carries the food away to the liver. Some of the food can not be used, and is left in the bowel, and the liver sends a messenger to move this and other rubbish along and also to kill any bad microbes which have slipped into his house.

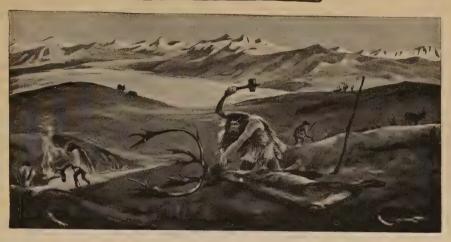
### THE WONDER THAT CAN NEVER BE TOLD

The stomach and the bowel studded everywhere with wonder. stomach has millions of skilful chemists, who are also cooks. Too many cooks do not spoil the broth in this case, for Jack has billions of them in all. cooking done outside Jack's house is only the beginning; and there is no kitchen in the world to approach Jack's, and there are no waiters like the white cells of the blood.

Such are a few of the wonders of Tack's ground floor. Not a thousandth part of what the wise men know has here been told to you; what we know is not a thousandth part of the whole nor could the whole ever be told.

CONTINUED ON PAGE 6107.

# The Book of STORIES



# THE FIRST MEN IN ENGLAND A TALE OF THE DAYS OF LONG AGO

SWAR was the first CONTINUED FROM 5016 baby ever born in the land now known as England. His father. Wawa, was the leader of a tribe of savages living across the river which divided the country from what is now France. There was no English Channel in those days, but only a broad, deep stream running between low banks of chalky ground. Wawa had often swum across it, and returned home with a string of rabbits hanging from his shoulders; for food was growing scarce in France, and the green jungle on the English side of the river was full of game.

One bitter winter, when the tribe was starving, Wawa crossed the river and returned with a young fat deer. It was then that the tribesmen, after some discussion, decided to move to the other side of the stream. At first many of the women refused to go.

"The river is too deep and swift," said Bina, the wife of Wawa. "The children will either be drowned or killed by the wicked longhorns."

By the longhorns she meant the fierce rhinoceroses which then lived in English waters. For England at that time was very different from what it is now. The land was a wild

green jungle, haunted by stealthy and terrible lions, and great bears, and fierce wolves. Reindeer, horses, sheep, and oxen roamed in wild herds in the open places, and now and then a troop of hairy elephants came crashing through the forest. In the

crashing through the forest. In the reedy rivers herds of gigantic animals snorted and splashed.

"There is no danger," said Wawa.
"The men can easily swim with the children on their backs, and you women can carry the tent-skins."

"And who will carry the fire?" said Bina.

To this question Wawa could not find an answer. It was clear that the tribe must carry their fire with them. Few savages in those days knew how to make fire quickly, either by striking sparks from a flint or by twirling a stick of hard wood in a hole made in softer wood. Most of the tribes got their fire from volcanoes and burning forests, or from some race who had already obtained a tribal fire from these natural sources. Sometimes they had to go far to find it, especially in winter time, but never before had they been forced to carry it across a stretch of water.

Time after time he made a great torch of firwood, and tried to swim the river so that he could light a fire with it on the other bank; but the torch always went out before he reached the shore. At last, as winter was changing to spring, he thought out a plan.

"We must make a large raft," he

a small hole in the trunks of the trees, and in these holes kept fires lighted until the bottoms of the trees were nearly burnt through. Then one wild night a storm of wind came and sent the oaktrees crashing to the earth.

The tribe danced around the fallen trees, and feasted far into the night. It



The tribesmen, after some discussion, decided to move to the other side of the stream.

said, "large enough for us to carry fire on."

He chose three great oak-trees, and the tribe set about felling them. The only tools the tribesmen had were rough, blunt stones fixed into cleft sticks. With these flint axes it was impossible to cut down a great tree. So Wawa thought of another plan. The fire should help them to build rafts to carry itself across the water; he hollowed out was the first time they had been able to fell great forest trees, and the sense of a new power filled them with pride. Everybody was now eager to cross the great river and settle in the new land where food was plentiful.

It took six weeks for the tribe to make a raft capable of carrying their precious fire, and their little babies, and the skins they used for tents. Axe after axe was broken in lopping off the large boughs.

The women took the blunted flints and sharpened them. They worked in pairs. One held the flint in both hands on an anvil-stone: the other woman sat on the other side of the anvil and struck rough flakes off the flint with a stone punch and

stone hammer. Their work was rough, and their tools were little better than sharp flints found by the roadside, yet they were human tools, and with them they got the wood for the raft ready by the middle of April. This was a good time to start, for roots were push-

ing up in the woods, and birds were coming back from the south. There would be food, and soon there would be shelter. They had no nails to join their raft, but they fastened the larger pieces

together with long strips of reindeer skin, and bound the smaller sticks with willow twigs. Then they lined the middle of the raft with clay, and when this was dry they lighted a fire on and, with long poles, flaming steered their vessel across the stream. They were nearly overturned by a rhinoceros, but the smoke blew into

the face of the monster and frightened him off.

"Ho, ho, ho!" shouted Wawa, as he moored the raft by the English bank. "That's the first time old Longhorn has seen a fire on this water, and he doesn't like it at all. Ho! ho! ho!"

The men made a clearing on some high ground by the river, and put their fire in the centre of it. Then they brought their babies and tent-skins across on the raft, and the older children and the women merrily swam after them, and

began to busy themselves with setting up the first village in England. Four rough stakes were fixed in the ground, four poles were lashed to their tops, and over this structure the skins were hung.

"How many tents shall we put up?" said some of the tribesmen to their chief.

"One man," replied Wawa.

By this he meant twenty huts. The tribe were not good at figures. They had words only for the first four numbers-one, two, three, four. For five they said

a hand; for six, a hand and one; for ten. two hands; for fifteen, two hands and a foot—that is to say, ten fingers and five toes; for twenty they said a man. which was a short way of saying ten

fingers and ten toes. If you had asked Wawa what was the number of men and women and children in his tribe, he would have replied, "Three men, two hands, and three."

I will leave you to make out how many that comes to by our way of reckoning. The next morning, however, there were three

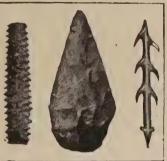
men, two hands, and four in Wawa's new village. For in the night a little baby boy was born to Bina. He was a funny little creature, and he came into the world lightly covered with fine, soft hair.

"How pretty he is!" said his mother. "Let us call him the Fawn."

"No, no," cried Wawa; "if we do so he will grow up as tim'd as a deer. He shall be called the Lion."

Now, the lion, in their language, was called the "Swar." And that was how the first baby that was ever born in England came to be known as "Swar."





The weapons they used.

### LONDON HOW SWAR PLAYED WITH THE CAVE LION

SWAR was about five years old when he came to London. It was a very strange place in those days. The Thames was much deeper and wider than it is now. A great part of the valley between the heights of Hampstead and the hills of Surrey was under water, 

and the rest was a trackless jungle swamp. Here and there, on patches of rising ground, grew large fig-trees laden with ripe fruit, and there were tall laurels, towering planes, and hundreds of strange plants and lovely flowers which flourish in warm countries.

Monkeys chattered in the forest; herds of elephants and wild horses and wild cattle roamed in the prairies. In the river were fierce, huge water-beasts, like the rhinoceros and the hippopotamus; and panthers and leopards and striped hyenas crouched by the river edge.

"Here we will plant our tents," said Wawa, the father of Swar and the chief of the tribe, leading his people to the spot where St. Paul's Cathedral now stands. "The great water will protect us on the south," he said, pointing to the Thames. "And these streams will guard us on the sunrise and the sunset," he continued, turning to Walbrook on the east and Fleet River on the west.

On the north was a swampy marsh, and here the tribe built a great fire, and kept it burning night and day to scare wild animals away from their camp.

"Be very careful, Bina," said Wawa to his wife, "that Swar does not toddle beyond the fire. Women and children must bide in camp until the hunters have cleared the swamp of great beasts."

"How tired I am of it all!" exclaimed Bina. "Ever since Swar was born we have been kept moving farther and farther north. Shall we never settle down quietly in some place where the children can walk about in safety?"

"Yes, little woman," said Wawa, with a smile. "Now I have come to this great new river, where game and fish and beavers are so abundant, I will cease from wandering, and settle here. Look! Here is the pelt of a lion's cub I killed this afternoon in the swamp. You can make Swar a fine dress of it. Then he will be a little Swar indeed."

Swar was the tribesman's word for "lion," and it was given to the little boy so that he might become as brave and mighty as the king of the jungle. Bina was much pleased with the cub's skin, as her child had torn his beaver dress to pieces. Without waiting to cure the pelt, she quickly scraped it and tied it round Swar, who was eager to show himself to his playmates in his new and glorious attire.

"I'm a lion—a terrible lion!" he shouted gleefully, running among the

other children.

He ran about on all fours, trying his best to roar in a voice of thunder, and his companions pretended to be very frightened, and then they got some sticks, which they made believe were spears, and with these they began to hunt the lion.

Swar was at a disadvantage, as, in order to play the game, he had to crawl about on his hands and feet. At length, pressed by the hunters, he crept down the bank of the Fleet River, and tried to find some hole into which he could retreat.

"Daddy says that the cave lion always goes into its cave when it is badly wounded," said Swar to himself, as he clambered down to the water-edge, and then stole out into the swamp. This was a delicious place to hide in. Tall grasses higher than his head waved in the wind. Clumps of dense bushes with stiff forked branches that he might crouch in rose everywhere. He crawled in thick deep moss.

By this time he had got quite away from his companions. He could hear them calling in the distance to each other, but none of them dared to leave the camp. Swar hid in a clump of bulrushes, vainly waiting for his playmates to come and discover him.

It was not until it was growing dark that he came out, and then he was frightened by the silence and the loneliness and the strangeness of the jungle in which he had hidden. It was too dim for him to see his way and in trying to get back to the camp he walked farther out into the marsh.

Suddenly a lion roared quite close to him. He cried out in terror, and a huge form crashed through the underwood and pounced upon him, and then stood over him, whining curiously, and licking him and smelling him. It was the lioness whose cub Wawa had killed. The poor huge beast knew the smell of the skin that Swar wore, and thinking that he was her cub, she picked him up gently in her | mouth and trotted off with him, purring as a cat does when it is pleased.

All that night Wawa and Bina and the men and women of the tribe wandered by the Fleet and the Thames and the Walbrook, searching for Swar. At break of day the father found the trail of his little son, and quickly traced it through the swamp to the clump of bulrushes. There he caught sight of the print of the feet of the lioness, and he cried aloud with woe, and fell down weeping.

Very slowly he went back to his tent. and took out his heaviest club-a great stone thing weighing a quarter of a hundredweight-and called to all his men to bring out their hunting spears and follow him.

"Are you going to find Swar?" Bina. "Have you found his trail?"

"Yes," said Wawa slowly. "I have found his trail."

He could not bring himself to tell his wife what he had found besides, but hurried off with his men on the spoor of the lioness. "I killed her cub; she has killed my child," he thought to him-

self. "I will take care that she shall not kill anything else."

He traced the spoor of the huge beast across the swamp to a cavern on the southern slope of Primrose Hill.

"Wait till I call," he whispered to his men. And very warily and very gradually he crept up between the dense jungle growth to the mouth of the cave. Happily, the wind was northerly, so his scent was not blown towards the beast's den. He got within fifteen paces of

the cave, and then peered through the leaves.

Had he been less surprised at what he saw, he would have leaped up and shouted. As it was, he kept utterly motionless with wonder, having grasped the situation. The lioness was lying down just outside the cavern, and Swar was sitting quite happily between her huge paws and merrily playing with

He pulled her wooly fur, and she sat blinking at him with her large yellow eyes. Then he tried to clamber up her huge back, but rolled down, and seized 

her long tail, saying, "If you won't take me back to the camp, I'll run away." The lioness still blinked lazily at him, and in the light of the rising sun her yellow eyes looked like jewels. Swar made a playful jump at them, and ended by clasping his little arms around the dread beast's neck. Then he started to toddle off, but the lioness arose and gently took him in her mouth and sat down again by the cavern, and dropped him on her paws, and purred over him and patted him lovingly.

"She thinks he is the cub she lost, and she is afraid to let him go from

the cave," said Wawa. "She smells the cub's skin around him. and that saves him."

The chief crept back to his men, and told them to return to the camp.

"One man now," he said, "is better than There many. will be less danger of her scenting anything strange when she leaves her den in search of some food."

Happily, the great beast was very hungry, as she had not done any hunting while seeking for her cub. A little before noon she got

up and shook herself, and disappeared in the jungle in search of food. This was Wawa's opportunity to recover his little boy.

"Swar! Swar!" said Wawa to his boy, who was sitting on the ground.

Swar ran forward with a cry of joy, and Wawa lifted him on his shoulder, and tore with him through the thick jungle.

That night the chief had a line of fires lighted all along the northern side of the camp, and the lioness howled behind them for her little human cub but dared not enter the camp. But Swar slept soundly in his mother's arms.



THE TRIBE BUILT A FIRE

### THE TALE OF A SLAVE

IF ever you go to Algiers you will hear the name of Geronimo, and this is

the story they will tell you.

Geronimo was an Arab, a native of Algeria, where he was born in the middle of the sixteenth century. He was taken captive during an expedition made by the Spanish garrison of Oran, and was baptized into the Christian faith. When he was eight years old, however, he managed to escape and rejoin his friends. Persuaded by them, he then renounced his new religion and became once more a Mohammedan. But the teaching he had received during his captivity had made a deep impression upon him. He returned to the Spanish garrison, and became a Christian.

Some time afterwards, however, when out in a boat, he fell once more into the hands of enemies, this time a band of Moorish pirates, who carried him to Algiers and sold him as a slave in the market-place of his native city.

Now, when he and his fellow-captives were standing in the slave-market wondering whether they would have kind masters or cruel, Geronimo was singled out on account of his manly bearing by an agent of the Governor of the city, who paid the price demanded. His master proved to be a stern and cruel Mohammedan, who demanded that he should give up his faith. Those who accept this religion think that they commit sin if they do not try to make all around them accept it also, and will go to any lengths to carry out their purpose. Moreover, he did not consider that a slave had any rights aside from his master. He bade his overseer see to it that the new servant turned from his former beliefs.

This, however, Geronimo firmly refused to do. His master became infuriated, and treated him with great brutality. When he found that this had no effect, he offered him great rewards and even liberty itself if he would do as he wished. But Geronimo remained steadfast.

About that time a new fort was being built and Geronimo, with other laborers, was working there. Part of their duty was to make huge blocks of cement, for the walls of the fort. The process was this: the cement was mixed in great quantities, much as it is to-day, and then shoveled into big wooden boxes. When

it had set, the boxes were removed, and the solid masses were carried away and

placed in position.

One day, as the Governor strode among his workmen his eye fell on Geronimo. It occurred to him that a terrible instrument lay ready to his hand. He would give his slave another chance of renouncing his religion, and if he refused he should be buried alive in one of those boxes of cement.

Geronimo was brought forward and given his choice. He refused. The Governor, beside himself with fury, ordered the brave fellow's hands and feet to be bound, and the cruel sentence was carried into execution. The great block of concrete, with the heroic slave imprisoned inside, was placed in the wall of the fort. Geronimo was calm and brave to the end. As the deed was finished, the Governor, who, perhaps, had hoped in his heart that Geronimo would not hold out, was heard to exclaim: "I never thought that dog of a Christian would die with so much courage."

The event reached the ears of one of Geronimo's old friends, a Spanish monk, named Haedo, who wrote it down. This was in the year 1569. Nearly three hundred years after, in 1853, it was found necessary to destroy the fort, and the man in charge of the work determined to see if the story of Geronimo were true. After much patient digging and searching his labors were successful, for on December 27 in that year he discovered the martyr's remains enclosed in the masonry as had been described by the old monk three hundred years

before.

The bones were carefully removed and interred with much pomp in the Cathedral of St. Philippe, where they rest to this day, in a marble tomb.

As a further memorial of Geronimo's splendid fidelity and courage, liquid plaster of Paris was run into the mold formed by his body in the concrete wall, and a perfect model, showing not only his features, but also the cords that bound him, and even the texture of his clothing, was produced. This now lies in the Government Museum at Algiers, and that is why, if you go there, you will hear the story of Geronimo.

## THE FARMER AND THE RAVEN

A MAN caught a raven, and, after a great deal of trouble, he managed to teach it to say, "Of course I am." He then took it to a neighboring town, and offered it for sale in the marketplace.

By-and-by two farmers came, and one of them asked the price of the

bird.

"Ten pounds," said the owner.
"That's a lot of money," remarked the farmer to his friend. "Do you think it worth so much?"

Before the other farmer could reply, the bird croaked hoarsely, "Of course

I am."

This apparent cleverness so pleased the farmer that he paid the money and carried off the raven.

When he got home, he said to his

"See, I have brought you a present."

"Oh, thank you!" said the wife. "He is a very pretty fellow.'

Promptly the raven exclaimed. "Of

course I am."

The woman was greatly pleased. "He is as sensible as a human being," she said, and the raven answered solemnly, "Of course I am."

The farmer and his wife were quite delighted, and looked forward to having much amusement from so clever a bird. Their hopes, however, were doomed to disappointment, for the raven never spoke but the one phrase. Many a time did the farmer wish he had not parted with his money so thoughtlessly. At length he exclaimed in anger:

"That bird is a regular swindle."

The raven stretched out his neck and croaked dismally, "Of course I am."

"Try before you buy, next time," said the farmer's wife.

### THE SON WHO RETURNED HOME

IN Japan, many years ago, a son who lived a very bad life brought great disgrace on his parents, who, nevertheless, loved him dearly. But their relatives persuaded them that it was their duty to disinherit so bad a son, and it was arranged that, according to custom, a meeting of the relatives should be held, to go through the ceremony of disinheriting.

The son heard of this, and, speaking mockingly of his parents before his bad companions, he declared that he would suddenly rush into the meeting, and, swaggering like a brigand, demand a large sum of money before they should get rid of him. His friends encouraged the plan, and made much of him. They were overjoyed to think that they could share in the spending of the money. Afterwards, when it was all gone, they would leave the bad son to go his way alone.

When he came to the house he peeped

through a hole in the door, and saw the family sitting in a circle. The disinheriting document was handed to the father for his seal, but, with tears in his eyes, the father hesitated.

"After all," said he, "my son may

get better."

"Yes," said the mother. "Let us wait a little longer, and see if he will turn."

The relatives urged them to affix their seals; but again the parents hesitated, and, with tears in their eyes, spoke of the possibility of their son giving up his

evil ways.

The relatives began to get annoved. but still the father would not put his seal to the document. The son, who was listening, felt a new sensation come over him. He was touched by the love of his parents, and, bursting into the room, he craved their forgiveness, and from that moment he forsook his bad companions, and gave up his evil ways.

### THE STONE THAT GATHERED NO MOSS

ABOY came home from school one day, and said to his mother: "The teacher told me this morning that it was not worth my while coming to school any more, as I seemed to have nothing more to learn, so I shall go no more." 

"Very well, my son," replied the mother, "if you have done with school, you must go to work. I know of a tinker who is in want of a boy; you shall go and work for him."

The boy was delighted, and accordingly

set out next morning to learn the trade of a tinker. It was summer-time, and for a while he was quite happy roaming about the country with his master, knives and scissors. grinding winter came, with ice and snow, and he found that the life of a tinker was not all he had thought it. So he decided to look for other work.

A few days later, as he was passing along a street, he saw a tailor sitting in a shop window stitching away. is the sort of work I should like," he thought. "I will become a tailor." So he left his master and started to learn

how to cut cloth and make clothes. For a little while all went well.

. "T am indeed fortunate to have got work so much to my liking," he thought. "I shall suffer no more from the bitter winds or driving storms of rain and snow. No more cold hands and tired feet for me. Think of picking up good dry cloth in-stead of wet cold knives and scissors which always sent a shiver down my spine. Instead of trudging along the roads for hours at a time, I shall have nothing to do but

sit in a warm room and stitch from morning to night."

Once more he became discontented. Not all at once, of course, for discontent never comes like that, but one little thing was unpleasant, then something else became disagreeable, till before very long he was as unhappy and enduring as many miseries as he had already escaped

"It's all very well to be a tailor in the winter-time," he said to himself, "though sitting still on a hard board hour after hour makes one's limbs ache so that it is nearly impossible to stand; but in the hot summer days it is really cruel to expect me to remain at work indoors with the heat from the irons. No, I can't

stand it any longer. I must get other work."

That afternoon there came down the street a regiment of soldiers. How brave they looked in their trim uniforms!

There is some pleasure in a life like that," thought the boy. And then and there he decided to become a soldier.

Very soon he found out that he had made a mistake. A soldier's life was far different from what he had imagined. There was heavy drill and constant work. The flashing swords, the spirited horses, and the smart uniforms had all to be kept in order. It was not the easy life of

grandeur and glory he had pictured, but one of endurance and effort. Sometimes when he was quite worn out with the exertions of the day he had to mount guard instead of having the sleep and supper he longed for. To make matters worse, he could not give up his work the moment he grew tired of it, as he had done before. He was bound to serve his country for three years, and, whether he liked it or not. had to obey those who were over him and make the best of the position his foolishness had



The boy decided to look for other work,

brought him to. At length his period of service came to an end, and he took his discharge. He made up his mind to visit his native village. way he heard of a farmer who wanted an extra hand to help with the harvest, so he made his way to the farmhouse, saw the farmer, and asked for the post.

The farmer asked him what kind of work he could do.

"I can turn my hand to almost anything. I have been a tinker and a tailor and a soldier."

"Ah," said the farmer, "I am afraid you are not the sort of man I want. I am looking for a man who is not afraid of work. If you had had any idea of 

working for your living, you would not have tried so many trades. You would be of no use on the farm."

And so the young man went here and there, but wherever he went it was the

same story, no one wanted to employ a man who had done a little of everything but had learnt nothing well. And all his life he had difficulty in earning sufficient to keep himself.

## HOW THE CHILDREN SAVED THE BEARS

HEY'VE come!" said Wandy, sitting on the log beside Tiki-tiki. "Two red-faced men from town, come for 'scientific research,' with their horrid legs all strapped up in leather! They've pulled out their guns already, and they're all looking at them and talk-

ing, inside" -she nodded towards the homestead — "daddy, too, and Alan and once he wouldn't have shot a bunny, even if it had eaten up his prize lettuce! When they've had some tea. the men from town are going straight off to get Australian specimens. They want a native bear. alive, 'cos the law says they must not be killed: but if

it dies it can't be helped. It'll do stuffed! Isn't it awful?"

"Isn't it dreadful?" echoed Tiki-tiki

gravely.

"And daddy says we are to show them where the bears are, 'cos no else knows. What shall do?"

The children looked at each other with round eyes of horror.

"What shall we do?" asked Tiki-

"We can't tell them wrong," said Wandy, "'cos that would be fibs. I know"—she mused slowly—"we might show them where the bears are when they're there. Let's tell them where the bears live when they're at <del>~~~~~~~~~~~~~~</del>6025~~~~~~~~~~

home, and, while we go through the bush, warn them not to be in today!

"What a good plan!" said Tiki-tiki, "And when we've passed the bears' home, we might lose the men a bit for cruelty to animals — especially animals."

In due time Wandv and Tiki-tiki set off for the bush, as the country is called in Australia. With them were the two scientists, a dog, two guns, and two wallets of cartridges. The scientists found the children charming comrades. full of instructive chatter about their little bush brothers and sisters, as



The children warned the bears to say nothing.

they called the wild creatures of the forest.

"Wandy means little woman," said Tiki-tiki. "It's aborigine talk. My name's Little Brother, and the baby bears are koalas. These are our bush names,"

But he did not tell that Wandy and he could speak the fairy language. That might have given a clue to show the scientists what they were doing to save the baby bears, and they perhaps would be sent home again. Daddy would be angry if they were not polite to his guests, but friends come first, and the bears were such good fun.

The two little blue smocks sped on as fast as four short legs could go. The

scientists, though vastly interested in all they learned about bush creatures' ways, thought it a long, long walk to the bears' home. Under the blue smocks Wandy's and Tiki-tiki's hearts were beating time to their legs. For the chil-

dren were afraid the bears might be sleeping up in the tall gumtrees, and never hear the warning.

It was in fairy talk that Wandy and Tiki-tiki warned the bears to lie low and sav All nothing. the time they were passing under the gum trees they trampled hard on the bracken and twigs and bark, and asked the two

Such a dance Wandy and Tiki-tiki led the scientists.

scientists if they would please stamp hard too, so as to scare away the snakes! So the bracken and twigs and bark were all the time crick-cricking a message on wireless fairy telegraph batteries.

Then the locusts on their watch-towers in the branches took the message, and sent it from tree to tree, wherever there were bears; and the message said:

"Danger! Scoot! Love - From Wandy and Tiki-tiki."

But the wise gumtrees that stretch

their protecting arms above all the innocent bush folk swayed anxiously. and sighed a wireless question back to the children: "How about the doo-doo? Will not he scent out the bears?" Doo-doo is the word for dog.

So Wandy rustled her hand caressingly through some gum-leaves to say: No! For Tiki-tiki has a nice little bit of raw steak in his pocket, and the doo-doo will

follow him, and not bother about any other trail.

By this time the scientists were hot and cross and tired, and sat down in the shade to rest. Perhaps the smell of the gum and eucalyptus trees floating

on the warm air made them sleepy. But Wandy and Tiki-tiki went straight ahead and never once looked back; and the doodoo followed Tiki-tiki. nuzzling at his pocket.

When the scientists thought it time to move, they looked round for Wandy and Tiki-tiki; but all they could see far away in the scrub was two blue smocks fast

vanishing out of sight, and a gleam of golden hair, and a little round, dark bobbing head.

"Coo-ee! Wait a bit!" they called. Such a dance as Wandy and Tiki-

tiki led those two scientists you could never think. In and out among the trees, over logs, down gullies and across creeks with the kooka-burras as they call the laughing jackasses in the bush, laughing all the time. When the scientists got near enough to

clutch the children, they were off again; and, indeed, if the scientists had not been so very scientific, they could almost have fancied they followed a fairy and an imp instead of a real little girl and boy.

In a little glade, deep in the heart of the bush, the scientists thought they had at last overtaken the children, but they rubbed their eyes when the blue smocks turned out to be two little blue 



The goblin kooka-burras laugh at sunrise.

gum-trees swaying in the wind, and the gold hair was a sunbeam, and the little

dark head a bobbing shadow.

The scientists, who had often boasted of their skill as bushmen, found, to their disgust, that they were hopelessly outwitted. Then the mosquitoes found them out, and they were more irritating than even Wandy and Tiki-tiki. And those goblin kooka-burras, who always laugh at sunrise and sunset, and so are called the bushman's clock, were saying quite plainly: "Lock-up time in the bush! All trespassers out!"

Meanwhile, Wandy and Tiki-tiki, followed by the doo-doo, marched right on for home, and when they reached the slip-rails of the home paddock it was

quite dark.

Indoors daddy and Alan were waiting for the scientists, anxious to see the day's bag, but mother was eager to have Wandy and Tiki-tiki safe in her

arms again.

Of course, everyone understood that the scientific guests had waited behind to make the most of the last hour of daylight, which is the best time for sport, for at dusk all the shy creatures venture abroad.

Ten o'clock struck, but, though there was a bright moon, no scientific friends appeared, and the doo-doo was whining uneasily. So a search-party had to go —daddy, and Alan, and the gardener, and even an old tramp who was camping at the homestead for the night.

Strange to tell, the doo-doo was now quite ready to leave Tiki tiki, and joyously bounded ahead with Alan, and was not long in following up the trail and finding his lost masters, who were really quite angry, though, as visitors

in a strange house, they had to pretend that it was a good joke. They cheered up a little while they were eating the hot supper mother had kept for them, and the doo-doo was being fed by Wandy and Tiki-tiki, who had been allowed to stay up late to see if the wanderers reached home in safety.

After supper, sitting round the big cosy wood fire, people began to ask

questions.

"Queer you had such poor sport today," said daddy. "The children have never failed before to run across some native bears. Very queer!"

"Yes," said one scientist. "But more remarkable still that my dog deserted me for your little boy. He has never

done that before."

Then the other scientist began to wonder why Wandy and Tiki-tiki had

not waited when he coo-eed.

"Why didn't you keep up to us? It was not the time to sleep then, for if the bears had already seen or even heard us, it gave them time to hide away. They only sleep when they have nothing else to do, or when it is cold," said Wandy, looking at them gravely.

Of course scientists ought to know this, and so the man stopped asking questions. They went back to town next day. They had had enough of the bush—no sport, too little scientific research, and too much of Wandy and Tiki-tiki. They have written in their scientific notebooks that there are very few animals in that part of Australia.

So this was how two little Australians saved the baby bears, and they mean to do the same every time people go out to harm their brothers and sisters of the

bush.

#### IN A MINÛTE TALES TOLD

### SAVING FIVE HUNDRED YEARS

A JAPANESE boy caught a tortoise, which is known to live hundreds of

"A fish for dinner will do just as well." said he. "I will not cut short its long life of five hundred years."

So he put the tortoise back in the sea.

### THE BREAD-WINNER

A father was working on a high scaffold with his son, when the scaffold broke, so that it was only able to support one. 

"Good-bye, father," said the son: "you are the bread-winner. I will let

So the son died, and saved his father

to support the home.

#### SELLING THE SUN FOR A SOVEREIGN

A man once found a sovereign in the street, and for ever afterwards it was noticed that he looked on the ground as he walked along.

But he never found another sovereign, and in addition he never saw the sun.

## STORIES TOLD IN CHINESE SCHOOL-BOOKS

No lesson is more taught in China than that of respect for parents. This is enjoined as a religious observance, and has developed into the worship of ancestors. The story-books of the Chinese boys and girls are full of such stories of filial love as are given here.

### THE MAN WHO FOUND DEER'S MILK

THERE was a young man named Yen, who had a great love for his father and mother, both of whom were very feeble and nearly blind. The doctor who visited them declared that the only thing that could possibly do them good was deer's milk, but this was too costly for them to buy. In the dead of night Yen went away to the mountains and shot a wild deer with his bow and arrow. Then, stripping off the skin, he dressed in it, went among the herd, milked the deer, and brought the milk to his parents, thus saving their sight.

#### THE BOY WHO SERVED HIS FATHER

WHEN little Hwang lost his mother, he determined more than ever to be a faithful and loving son to his father. It was the summer-time, and the father tossed about on his bed, unable to get any restful slumber owing to the great heat. Hwang crept to the bed, and, taking his little fan, stood over his father all night fanning him, so as to make him comfortable. This he continued to do all through the summer months. Then, when winter came, Hwang always lay upon his father's bed for an hour, to make it warm for him.

#### THE FISH FROM THE LAKE

ALITTLE boy named Liang, who had lost his mother had a stepmether lost his mother, had a stepmother who treated him roughly, and was always finding fault with him. But Liang did not let this draw him away from his duty, and he was always seeking to do some kind act for his stepmother. She was very fond of fish, but during a cold winter there were no fish to be had. So Liang went out at night on a frozen lake, and, lying at full length on the ice, he breathed upon it until a hole was melted, and then through this he drew two carp, and took them home for his stepmother's breakfast. A great poet who heard of Liang's action wrote a poem about it.

#### THE BOY AND THE MOSQUITOES

THE parents of Wu Mang, who was only eight years old, were very poor, and could not afford curtains to

put round their bed to protect them from the mosquitoes. So directly his father and mother were asleep, Wu Mang went and lay down close to them, and when the mosquitoes settled upon him did not drive them away, but allowed them to bite him. In this way he drew all the mosquitoes away.

#### THE OLD MAN WHO BECAME A CHILD

LAE was an old man of seventy, but all his life he had been a most dutiful son, and now that his parents were very old, he gave up his life to pleasing them. Their minds had become weak owing to their age, and they had forgotten how old they themselves were and that their son had become a man; they thought that he was still a little child. So, in order to give them pleasure, Lae dressed himself in gaily-colored garments and danced about like a boy, to the great delight of his father and mother, who clapped their hands and said: "What a bright little boy is our son! How happy he makes us as he gambols about in his childish innocence!"

Lae's limbs ached for a week afterwards, but he bore it patiently and even gladly, though it was hard at times not to walk stiffly before his parents.

#### THE KIND SON WHO BECAME EMPEROR

7U SHUN was a very dutiful son, although his parents cared nothing for him. They loved his brothers, who were bad and idle men, but more handsome than Yu Shun. One day his father put him down a well, and his brothers threw stones at him, but he managed to climb out. Then they set fire to a granary when he was inside; his clothes caught fire, but again he escaped. All this time Yu Shun worked hard on the farm, fished in the river, and chopped down trees for fuel, so that everything necessary for the home was provided. At last the Emperor Yaon heard of his filial devotion, and chose him as husband for his daughter; later on the emperor resigned the throne in favor of Yu Shun.

CONTINUED ON PAGE 6127.





winter scene at the birthplace of Robert Burns, as it was in the poet's lifetime.

UST four years be-John Milton, a younger poet of less noble character, though still to be reckoned among the great writers, was appointed Poet Laureate. His name was John Dryden, and he

was born at the Rectory of Aldwinkle All Saints, in Northamptonshire, on August 9, 1631. Like Milton's, the parents of John Dryden were Puritans, but unlike Milton, Dryden did not throughout his life remain faithful to the religion of his youth. Indeed, his character cannot altogether be admired, for a great part of his life was spent in supplying the theatres, that had reopened with the restoration of Charles II to the throne, with plays of so vulgar a nature that they could not possibly be performed in public to-day.

Of course, the taste of the English people has greatly improved since the days of Charles II, when it was at its lowest, and the aim of all good people in our time is to keep public performances pure, and free from vulgarity. Instead of trying to do this, the Puritans simply shut the theatres, and perhaps did harm in that way, for as soon as the playhouses were reopened, the low-minded men and women who flattered and fawned upon the pleasure-

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loving king took advantage of their new liberty by encouraging the most vulgar performances. It is to the shame of John Dryden, gifted as he was with splendid poetic powers, that he did not disdain to earn his living

by pleasing the bad taste of his time. Thus we can never think of him with the personal admiration that we have for Milton, who only received a small sum for one of the noblest poems of all times, while Dryden was earning a good living by helping to lower public taste.

We do not know much about the early life of Dryden, except that he was educated at Westminster School, under Doctor Busby, a famous headmaster, who, although noted for his powers in thrashing his pupils, was admired and respected by all who came under his discipline. As a schoolboy, Dryden was fond of writing verses, and, also, when he studied at Trinity College, Cambridge, he continued his poetic exercises; but he does not seem to have been a scholar of any particular note. He inherited a small income, not sufficient to support him, and shortly before his marriage with Lady Elizabeth Howard, the eldest daughter of the Earl of Berkshire, he turned to

writing for the newly-opened theatres as a means of support. On the whole, his plays, though frequently containing notable passages, are unworthy, and we have only to compare the best of them with the poorest of Shakespeare's to realize how very poor they are, although Dr. Samuel Johnson, one of the least trustworthy of critics, would seem to rank Dryden before Shakespeare.

JOHN DRYDEN, THE POET LAUREATE WHO WAS A JACOBITE

When Tames II, brother of Charles II, came to the throne, and England seemed likely to become a Roman Catholic nation, as the new king wished to impose that church on the country, Dryden also became a Roman Catholic. This is often mentioned to his discredit; but there is little doubt that the poet was not guilty of the meanness of changing his religion to curry favor with the new king. He had been tending for some years towards the Roman Catholic faith, and, later, when William and Mary were called to rule the land after James had fled, Dryden remained a faithful Catholic, thereby losing what he had previously gained in the way of royal favor.

One of his most beautiful poems, "The Hind and the Panther," is written in praise of the Roman Church, which he likens to the "milk-white hind, immortal and unchanged," the Church of England being the panther, "fairest creature of the spotted kind," while the other Protestant Churches are likened to other ani-

mals of different kinds.

# WHEN DRYDEN WAS AN OLD MAN AND POPE WAS A LITTLE BOY

Dryden's great power took the shape of satire, and some of his finest verse is that in which he gives us biting pictures of historical personages. In his later years he adapted into English verse the works of the Latin poet Virgil, and, although these translations were well received, they do not give us a very good idea of the original, which is warm with all the sunshine and glowing beauty of Nature; whereas Dryden's verse is cold and glittering, like diamond-studded jewels. On May 1, 1700, Dryden died, and was buried in Westminster Abbey.

When Dryden was an old man, the most eminent literary figure of his day, there were people always keen to see him on his daily visit to a coffee-house where many men of note were in the habit of

It is said that one day, not meeting. very long before he died, the celebrated poet was pointed out to a little boy who had been brought there by a friend; and this pale-faced and delicate little fellow when he grew up to be as famous as Dryden had been, never forgot this glimpse of his master. Already, as a boy of eleven. Alexander Pope was an intense admirer of Dryden's poetry, and had begun to write poetry himself, imitating Dryden's style. Despite his delicate health and stunted form, Pope was a marvelous student when only a child, and by the age of twelve he had written some quite remarkable poems, at least one of which, "On Solitude," might be taken for the work of a thoughtful man.

He was born in London, on May 21, 1688, his father being a wealthy linendraper, who had joined the Roman Catholic Church, like Dryden, and who, in disgust at the new reign of William and Mary, had withdrawn to a house near Windsor Forest, where the early years

of his son Alexander were spent.

# THE BOY OF SIXTEEN WHO RESOLVED TO BECOME A GREAT POET

The boy received some instruction from priests, and other masters, but had no regular education, though his great thirst for learning, and the wonderful activity of his young mind, perhaps did more for him than the ordinary course of educa-tion would have done. He was extremely well read in the classic authors, and throughout his poetry we find him constantly making use of the ancient stories of gods and heroes of Greece. He was only sixteen when he determined to be a poet, and before he was twentythree years old, he had finished and published his famous "Essay on Criticism." a comparatively short poem, full of remarkable literary knowledge and ripe judgment. It contains many lines which are constantly quoted, such as "To err is human, to forgive divine" and "A little knowledge is a dangerous thing." This poem left no doubt that its young author was a genius.

Although, on the whole, Alexander Pope was not what we should call a lovable character, he was probably a better friend, and kindlier, than his poems would suggest, for, like Dryden, much of what he wrote was inspired by the unfriendly spirit of satire. He was the very opposite of a natural writer, every line

being of clearly artificial style, even when full of force and vigorous movement. Thus, he was peculiarly unfitted to translate the great Greek poems of the "Iliad" and the "Odyssey," of which we read on pages 73 and 74, which are full of the grand and solemn music of Nature; yet his translations of these books were so popular that he was paid \$40,000 for the work. Less than sixty years before, Milton had received two payments of \$25 for "Paradise Lost." If we were to reverse the two sums, we should be placing the proper values on the relative merits of the works; but, as we have said before, the best work is not always the most highly re-

warded. This does not say, however, that Pope was overpaid for his work, but that Milton was inadequately rewarded for his.

With the money which he thus earned, Pope bought a beautiful villa on the bank of the River Thames at Twickenham. There, as the friend of most of the great men of his time, the rest of his life was passed, and other famous poems were chief written, these being "The Dunciad," in which he satirizes all the lesser literary men who did not happen to be his friends. "The Essay on Man" was another

of the notable works written at Twickenham.

If it is by no means a pleasant picture of the poet which we gather from his writings and the stories told about him, we have to bear in mind that all his life was spent in physical suffering. "When the poor little man got up in the morning," says one writer, "he had to be sewed into stiff canvas stays, without which he could not stand erect; his thin body was wrapped in fur and prunelle; and his meagre legs required three pairs of stockings to give them a respectable 

look," On May 30, 1744, this strange little poet died, and was buried at Twickenham, where Pope's Villa is still one of the best-known houses.

The next of the great poets is one whose poetry is familiar to many young readers, and several examples of it are to be found in The Book of Poetry. William Cowper was born at Great Berkhamstead, in Hertfordshire, on November 15, 1731, and was thus a boy of about the same age at the death of Pope as Pope had been at the death of Dryden. But there was no likeness between the two poets, either in their characters or in their writings. Pope was almost entirely lacking

THE KIND-HEARTED POET AND HIS PET

William Cowper, the poet, was of a gentle and retiring nature, and was a great lover of animals. One of his pets was a tame hare, that lived for thirteen years, and at its death the poet, wrote the "Epitaph," given on page 2133.

in the gentle qualities of human affection, so far as his poetry is concerned, while this was the enduring note of everything that Cowper wrote. With Cowper the common domestic affections are for the first time in English made the almost continual theme of a great poet. He was of a gentle and quiet nature, loving all simple things, fond of animals, and full of reverence for the works of God, thoughequally capable of enjoying the untainted humor of simple life, as we read in his amusing ballad of "John Gilpin" on page

2657. He lacks the splendid vigor of Milton, and also the powerful satire of Pope, but he reaches the hearts of simple people by his gentleness and pure humanity. His greatest work is called "The Task," because he undertook to write it at the suggestion of a lady, as a task set him. It is a beautifully natural description of everyday life Cowper's and the changing seasons. father was a clergyman. His mother died when he was about six years old, and shortly after he was sent to a boardingschool, where he led a very miserable life for two years before he was sent to

Westminster School. At eighteen he entered a law-office, and when twentythree he had qualified as a barrister. He did little or no legal work, however, but lived a quiet and pleasant life in the Temple, writing a little for the publications of the day. Some years later, a relative secured for him an important position in the House of Lords, but the poet was so shy of appearing in public, as this office required him to do, that another post was suggested for him. For this he had to pass an examination, in preparing for which he overtaxed his mind, and had, for a time, to be confined in an asylum.

### THE SHADOW ON THE LIFE OF WILL-IAM COWPER, THE GENTLE POET

A tendency to melancholy was the result of this mental disturbance, and for the rest of his life, though enjoying long periods of happiness, he lived under the shadow of the dread return of his malady, but he was fortunate in the tender love of friends, won to him by his gentle sweetness of nature.

Apart from his many and beautiful poems, Cowper was a most charming letter-writer, and from one of his letters we take a description of himself. for me," he writes, "I am a very smart youth of my years. I am not, indeed, grown gray so much as I am grown bald. No matter. There was more hair in the world than ever had the honor to belong to me. Accordingly, having just found enough to curl a little at my ears, and to intermingle with a little of my own that still hangs behind, I appear, if you see me in an afternoon, to have a very decent head-dress, not easily distinguished from my natural growth, which, being worn with a small bag and a black ribbon about my neck, continues to me the charms of my youth, even to the verge of age." At East Dereham, Norfolk, April 25, 1800, this sweet singer, but afflicted man, passed to his rest.

The next great poet in the order of birth had died four years before Cowper, although he had been born twenty-eight years later. The name of Robert Burns has a more universal fame than that of his older contemporary, whom, as a man, he resembled in no way, but whom he outshone as a poet, by reason of a wider range of feeling and a still greater sweetness of song, which at the same time is stronger than that of Cowper.

# THE SCOTTISH FARMER'S SON WHO BE-

The story of Burns is, in some ways, sadder than that of Cowper. He was a great poet, who left us a splendid legacy of poetic beauty, but he might have given us much more, had he not, largely through his own folly, died too soon, with

many a gem of song unsung. Burns was born at Alloway, near the town of Ayr, on January 25, 1759; and, being the son of an intelligent farmer, who justly valued education, he received a good and serviceable training as a boy. This should be remembered, for he is too often described as a "peasant poet," assuming him to have sprung from a race of farm laborers. Although, in his youth, he did engage in farm work, we must not confuse him and his people with the uneducated countrymen of his time. He had, indeed, the good fortune to have for his father a man who had a real love of literature, and so cultivated the taste in his pupil that, early in life, Robert began the study of literary form; by which we mean not merely the reading of poetry because it pleases us, but the examining of the very words and phrases, to discover how the poet builds up the beautiful word-pictures which engage and please

# WHEN ROBERT BURNS WROTE HIS GREATEST SONGS AND POEMS

our fancy.

While still employed with the work of his father's farm, much of Burns's time was spent in studying the poets, and particularly those who wrote in the dialect of his native land, such as Allan Ramsay and Robert Fergusson. When he was twenty-five years of age his father died. and the poet himself became farmer on his own account; but, being without money, he soon got into difficulties, and being a poet, instead of a man of business, he sought to free his mind of his troubles by forgetting about them while he wrote his poems. For all the world the results were glorious, and in one marvelous year he had written poems enough to make his name immortal. "The Cotter's Saturday Night," which is in the Book of Poetry, "The Jolly Beggars," and "The Address to a Beggars," and "The Address to a Mouse" were among them; but he had not improved his condition as a farmer. At the end of two years he was still in difficulties, but still pouring out his wondrous song, with a feeling, a grace, and a

### ENGLISH POETS SINCE MILTON 🐟



John Dryden



Alexander Pope



William Cowper



Robert Burns



William Wordsworth

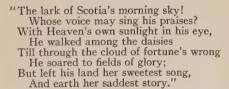


Samuel T. Coleridge

perfection of music which none before him surpassed, and scarcely any had ever equaled.

In hope of raising sufficient money to leave his native land and try his fortune in the West Indies, the poet brought out the first collection of his writings in a volume published at Kilmarnock in 1786, a copy of which is now worth about \$3,500. Very soon these poems were being talked of everywhere, and, although only a few dollars had been earned by the book, the young poet saw that fame might be within his grasp; so, instead of carrying out his intention to emigrate, he decided to stay in his native land. Perhaps, for his later life, this was almost a misfortune, as he found himself, when he went to Edinburgh in the winter of that year, the lion of the hour, sought after by all the great people of the town. His book was reprinted the next year, and brought him some much-needed money; but the entire sum he made from it, over several years, was only \$2,500.

His great gift of song had now burst into full flower, and it is astonishing to discover how much he enriched the poetry of his native land in a short space of time, by writing numerous new songs to old tunes. In 1788 Burns moved to Ellisland Farm, near Dumfries, and married Jean Armour; but the next year he was appointed to a post in the excise service, which may be considered as one of his greatest misfortunes, for it led him into company, where his fondness for drinking alcohol had all too much encouragement. His farm, too, was a failure, and the remainder of his short life was neither happy nor creditable. Oliver Wendell Holmes has written these beautiful lines about him:



Robert Burns died, July 21, 1796, at Dumfries, where he was buried. It is not for us to condemn in him the follies for which he paid by his untimely death, but rather should we admire the great genius that gave to the world so precious a gift of immortal song, and honor those fine qualities of courage, independence, and manly energy which we find abundantly in the best expressions of his mind.

Another great poet, who was twenty-six years old at the time when Burns died, but who had not yet become famous, was William Wordsworth. He was born at Cockermouth, in Cumberland, on April 7, 1770, and the greater part of his long life was passed in the beautiful Lake Dis- Elizabeth B. Browning



Lord Byron



Percy B. Shelley



John Keats



Lord Tennyson



Robert Browning



trict, not far from his place of birth. The life of Wordsworth was, happily, the very reverse in every respect from that of Robert Burns, and, as a consequence, although he lived to be eighty years, there is less to say about him. It often happens that the lives of men who have been foolish or unfortunate, and have died while still young, are more interesting to tell than those of men who have lived long and happily, and this is true in the case of Robert Burns and William Wordsworth.

### THE YOUTHFUL DAYS OF WORDS-WORTH, AND HIS FIRST BOOK

Wordsworth came of a good family. His parents died when he was young, but he was well looked after by his uncle, being sent to a private school, and later

to Cambridge University.

As a young man, Wordsworth spent some time in Switzerland and in France during the distracted period of the French Revolution. When he was twenty-three, he published his first modest book of verse, in which he describes some of the sights he saw abroad. His book did not attract great attention. But here and there some persons of good taste-and particularly his younger brother-poet, Samuel Taylor Coleridge—read it, who realized that its writer had the gift of true poetry. Simplicity of words, combined with lofty thought, and the truthful picturing of natural scenes, were the ideals at which the young poet aimed, and these, throughout his long life, he always strove after if not always successfully.

While his friends would have had him become a clergyman, he was more inclined to literary work, and as he came into a small legacy at the age of twentyfive, was, for a time at least, relieved of the need to earn his living. A few years later, the payment of a large sum of money, which the Earl of Lonsdale had owed Wordsworth's father, provided the poet with an income which was sufficient to make him free to give all his thoughts to his beloved art of poesy. He had settled with his sister Dorothy in a cottage at Grasmere, and their companionship was not disturbed by his marriage, in 1802, and is one of the pleasantest chapters in literary friendships. Wordsworth was, indeed, fortunate in many ways; he never knew the pinch of poverty, his friends were many and faithful. and his whole life was serene and happy,

flowing like a gentle stream through green pastures. He was honored and admired by the great men of his own day, and, on the death of his friend Southey, he was appointed Poet Laureate. He died on April 23, 1850, and was buried in the churchyard of Grasmere. Of all English poets, he was perhaps the most unequal, for, although he wrote much that was perfect, he wrote a great deal that was feeble and colorless; but as a writer of the short poems, called sonnets, no English poet except Shakespeare and Milton has ever excelled him.

#### CAMUEL COLERIDGE, THE POET WHO WROTE "THE ANCIENT MARINER"

Samuel Taylor Coleridge was two years younger than his friend Wordsworth, having been born in Devonshire, on October 21, 1772. He was the youngest child of a poor country vicar, and he received his education at the old Christ's Hospital in London, perhaps better known as "The Bluecoat School," because of the uniform worn by its scholars. He was a remarkably apt and brilliant scholar. In habits he seems to have been the dreamiest of boys, but his dreams were born of his deep and intelligent interest in the great works of literature. At Cambridge University he gave promise of his remarkable powers, but, falling into debt, he enlisted in the dragoons, for which service, of course, he was totally unfit. His captain released him after a few months, on discovering that his recruit was better fitted for the study than the barracks, and he returned to Cambridge for a time.

We next find him at Bristol, with his friend Robert Southey, dreaming bright dreams of a new and happier life across the Atlantic—dreams never to be realized. Still hard pressed for the means of life, he married and settled down for some three years in a Somerset cottage, writing in this period some of his finest poetry. "The Rime of the Ancient Mariner" and "Christabel" were two of his poems

written here.

"The Ancient Mariner" is one of the most beautiful and perfect things in English literature. It describes, in the simple, unaffected style of the old ballads, the fateful voyage of a ship, whose disasters were supposed to have followed upon the shooting of an albatross, according to an ancient superstition of sailors. Although Coleridge had no personal experience of seafaring, all the men of letters who have 

themselves lived a sailor's life are at one in considering "The Ancient Mariner" the finest of all the poems that have attempted to reproduce for us the mystery of the sea. This proves that the poet, by the exercise of imagination, can know, and make known to his fellow-men, the mysteries of Nature, without having gone through the actual experiences in his own person.

## COLERIDGE'S LAST DAYS AND THE POETS HE INFLUENCED

It was largely due to the kindness of friends that the life of Coleridge was made possible. Left to himself, incapable of conducting his own affairs in an orderly way, thriftless and slothful, he would probably have sunk into abject poverty and died obscurely; but his friends, who admired his great genius, sheltered him, and cared for both him and his family. It was in the house of such a friend at Highgate, with whom he had lived for some nineteen years, that he died, on July 25, 1834.

Immensely admired by all the great men of his time, Coleridge had exerted a power over his fellow-poets even more remarkable than the volume and beauty of his own poetry. Among those who thus came under the spell of Coleridge were Byron, Shelley, and Keats, and, although they came a little later, we might say the same of Tennyson and Browning. Thus, all these great poets, who lived at the same time, were in some way his followers, and so we can measure

his profound influence. The story of Byron is almost as sad as that of Burns. He was born to unhappiness. His father, a dissipated officer of the Guards, was a nephew of the fifth Lord Byron, and his mother was a Scottish lady, who was singularly incapable of bringing up her child wisely, or making him a happy child. George Gordon Byron was born in London, on January 22, 1788, and was there left with his mother when his father went abroad, never to return. His mother took her little lame boy—for he had been deformed by infantile paralysis, it is believed—to Aberdeen, to be near her own friends, and there his early life was passed; but when, in 1798, his grand-uncle died, and he became Lord Byron, he returned with his mother to England, where his education was continued at Harrow and, later,

at Cambridge University.

# THE YOUTH OF THE UNHAPPY LAME BOY, THE FAMOUS LORD BYRON

He was a headstrong and passionate youth, and his behavior at college was marked by much foolishness; but the power of poetry was in him, although his first book, "Hours of Idleness," which was published during his college days, gives very little promise of the moving and glowing verse he was later to write. Visits to the ancient towns of the Continent, and particularly some travel among the historic scenes of Greece, shaped the young poet's mind to works of romantic beauty, and in 1812 the first half of "Childe Harold's Pilgrimage," his first great poem, and the finest of all his writings, brought him immediate fame.

Byron was now in London, as Burns before had been in Edinburgh, the lion of the day, admired and flattered by all sorts of people. He was not, however, happy in his marriage, and his conduct as a man was severely condemned. In the spring of 1816, when he was only in his twenty-eighth year, he left his native land for good, and became a wanderer on the Continent.

## BYRON AS A SOLDIER OF GREECE, AND THE END OF HIS RESTLESS LIFE

During those years of changing residence, he wrote many fine poems, which brought him large sums of money; but his restless spirit knew little peace. The end of his short life became him better than much of his conduct after he left England. He joined the army of Greece as an officer in its war against its oppressor, the Turk, and if Byron was not fated to die fighting for the freedom of the storied land he loved, he was still in active service when fever overtook him, and caused his death on April 19, 1824.

The body of the poet was carried back to England, and conveyed by road to the burial-place of the Byrons at Hucknall Torkard, near their beautiful home of Newstead Abbey, which has long since passed into the hands of another family. So greatly had the romantic personality of the poet and the glamor of his poetry impressed themselves on his countrymen, that it is doubtful if the death of any other famous poet has ever occasioned so much emotion as that of Byron. Tennyson himself has told us that when he heard Lord Byron was dead he felt that nothing else mattered; and, certainly, when the poet breathed his last, at Misso-

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longhi, one of the most powerful voices in English poetry was stilled.

# THE STORMY LIFE AND TRAGIC DEATH OF THE POET SHELLEY

Another poet whose fate was also to become a wanderer abroad was Percy Bysshe Shelley, born on August 4, 1792, near Horsham, in Sussex. Shelley was a fair and beautiful youth, perhaps less manly in appearance than Byron, whose fine head and ardent eyes suggest at once a poet and a man of independent spirit. Shelley, like so many of the young men of his day, imbibed revolutionary ideas, as a result of the great revolution in France, and with these was united in him an unhappy revolt against the teaching of Christianity. The result was an ill-ordered and unrestful life, for, though his poetic genius greatly enriched English literature, with such fine works as "Prometheus Unbound," "Adonais," and the "Ode to the West Wind," we cannot help feeling that his life was unhappy and his end tragic. He was drowned off the coast of Italy, on July 8, 1822. His body was washed ashore near Viareggio, and it was cremated in the presence of some friends, one of whom was Lord Byron; his ashes were placed in a casket, and afterwards were buried in the Protestant cemetery at Rome.

# JOHN KEATS, ANOTHER GREAT POET WHOSE SUN WENT DOWN TOO SOON

In that same burial-ground lie the remains of another great English poet, who was a friend of Shelley, and who had died in the year before the latter was drowned. This was John Keats, who was born in London, October 31, 1795. Though only the son of a livery-stable keeper, and doomed to die before he had reached the age of twenty-six, he had yet, in his short life, by the grace of genius, made his name immortal. His poetry has the curious quality of being at once classical and natural. That is to say, steeped in the knowledge of the ancient writers upon whom the great poets of the Elizabethan era had modeled their verse, Keats wrote with all the artificial beauty of the Greeks, while yet he contrived to convey a sense of the freshness and sweetness which comes only direct from the love of Nature, as we find it in Chaucer and in Burns. One of his finest poems, "To a Nightingale," is on page 2744. He died of tuberculosis while at Rome, on February 23, 1821.

Unlike the last three poets of whom we have been speaking, the next great writer who calls for our attention was to enjoy a long life of serene happiness. Alfred Tennyson, who was born at Somersby Rectory, in Lincolnshire, August 6, 1809, was the third of six sons. Although his name is pre-eminent among the poets of the nineteenth century, had he died at the age Keats was when he passed away, it is doubtful whether he would have been so well remembered to-day, for Keats at twenty-six had given us finer gems of poetry than Tennyson had produced at the same age. This will serve to show us how much the world lost by the untimely death of Keats.

# THE YOUTHFUL DAYS AND EARLY WRITINGS OF ALFRED TENNYSON

Tennyson was brought up in a bookish atmosphere. His father, to whom his early education was due, was a man of literary taste; both his elder brothers were poets. At Cambridge he gained a medal for a poem, and in 1826, nearly two years before he went to the university, he had joined his brother Charles in publishing a volume entitled "Poems by Two Brothers," which has long been one of the treasures of book-hunters. He was thus a poet at sixteen, and a poet he was bound to continue, as poetry was the passion of his life. His first independent work, which was published in 1830, and a second series two years later, were received so coldly by the critics that nearly nine years elapsed before he ventured to publish another; yet in these books were such poems as "The Lady of Shalott," "The Lotus-Eaters," and "The Queen of the May," which have long been esteemed among the finest examples of his poetry.

Meanwhile he engaged himself on works which were destined to conquer not only the literary critics, but the whole reading public. When, in 1842, he published two volumes containing "Locksley Hall," "The Gardener's Daughter," "Lady Clara Vere de Vere," and many other poems of the rarest beauty, thrilling with a sweet new music, and mysterious with the glamor of old romance, he had quietly won the battle of fame, and was hailed on every hand as England's new king of poets. Wordsworth was then the commanding figure among the poets, but even he did homage to the genius of

Tennyson.

## WHEN TENNYSON WAS A YOUNG MAN



The proper title of this charming, old-fashioned picture by Frank Stone is "The Duet," but it is particularly interesting for the portrait of Tennyson as a young man which it contains. The young poet is seen standing in a leaning position behind the settee, his thoughts apparently borne away on the wings of the melody.

His fame established, the remainder of Tennyson's long life was full of honor and of fine work. His was not a wild and wayward nature, so he was happily spared the disasters that have overtaken so many of the poets. Yet he did not escape the struggles that all who have not inherited riches have to face, for he was a man of forty before he felt he could afford to marry. He took this step in the same year that he was appointed Poet Laureate, in succession to Wordsworth, and the year was also notable, in his life, for the publication of one of his greatest works-"In Memoriam." On page 2101 we print some verses from this long and beautiful poem, in which Tennyson mourns the loss of a dear friend, Arthur Henry Hallam, the son of a great historian, who had been untimely cut off. The greatest achievement of his later life was the writing of the "Idylls of the King," in which the old legends of King Arthur are told again, and invested with a new beauty. He also wrote a number of plays, but, although many critics think

that much of his poetry is worthy to rank with the best of Shakespeare, he lacked the dramatic power in which the master poet was without a peer.

Tennyson, after his marriage, settled for a time at Twickenham, on the Thames, but in 1853 he went to live at Farringford, near Freshwater, in the Isle of Wight, where much of his life was passed, and in 1870 he became the owner of a very beautiful house, specially built for him at Aldworth, in Sussex, set on the edge of a woody hill, and looking clear across the rolling downs towards the south coast. Here, and at Farringford, he enjoyed many years of serene and happy life, the undisputed king of the literary world of his day. In 1884 his services to English literature were recognized by his elevation to the peerage as Baron Tennyson of Freshwater and Aldworth. On October 6, 1892, he died at Aldworth, and was buried in Westminster Abbey. His life has been written by his son, the present Lord Tennyson.

There was another great poet, very dif-

ferent from Tennyson in many ways, whose life ran its course with that of Tennyson. Robert Browning was born in London, May 7, 1812, so that he was but three years the junior of Tennyson, who also outlived him by three years, Browning dying on December 12, 1889.

COMPARISON OF THE TWO GREAT POETS, BROWNING AND TENNYSON

Like Tennyson, Browning began to write poetry at a very early age, his first published work having been written when he was nineteen. His early education was chiefly derived from travel abroad, and Italy, as we have seen in the case of other poets, had much to do in influencing

the poet's mind.

Like Tennyson, he sought to inspire his fellow-men with hope, but there is, perhaps, in his poetry a stronger feeling of courage than we find in Tennyson. His verses are rugged and unhewn, like the rocks on the seashore, while Tennyson's are polished and sweet with music, like a beautiful Italian garden with its fountains. He is not easy to understand at times, as he often tried to express more thought than his words could carry. In short, he is to be considered a greater thinker than a poet, although we have seen that in such pieces as "The Pied Piper of Hamelin," on page 370, and "How they Brought the Good News from Ghent to Aix," on page 2305, he could tell a moving story in clear and memorable words.

There were many contrasts in the characters of Tennyson and Browning. While the one loved to appear a poet in his person, as well as in his works, the other endeavored always to be regarded as an ordinary man of affairs. Tennyson was somewhat inclined to withdraw himself from his fellow-men; Browning thrust himself boldly into the everyday life of his time, although we cannot suppose that he had a lesser love of poetry than Tennyson had. But most people think that Tennyson was the greater poet of the two; and that his works will outlast those of Browning in the affections of most readers.

## E LAND'S GREATEST WOMAN POET

Some people even consider, though not quite wisely, that Browning's wife, whose maiden name was Elizabeth Barrett, was a finer poet than her husband. It is true that, although Browning was thirty-four when he married, and had written several notable works, his wife's fame was then

greater than his own.

Mrs. Browning was indeed a remarkable woman. Born in Durham, March 6, 1806, the daughter of a wealthy landowner, she was so clever as a child that, when a girl of ten, she could read the poets of Greece in their native language, and at fourteen she had herself written a poem of some merit. An injury received when she was about eighteen made her an invalid for many years, during which poetry was the solace of her life. gentle nature, her warm love of the poor and oppressed, and her steadfast faith in the goodness of God, are all admirably expressed in her sweet and eloquent poetry, of which "Aurora Leigh," a work of considerable length, is perhaps the finest and purest flower.

### THE LAST DAYS OF ROBERT BROWNING AT HIS PALACE IN VENICE

When the Brownings were married, in 1846, they left England, and took up their home in the lovely Italian town of Florence, about which we read on page 2787, and there, on June 30, 1861, Mrs. Browning died. Her husband survived her for many years, and towards the end of his life he removed to one of the fine old palaces that stand along the Grand Canal in Venice, as seen in the pictures on page 3077. There Robert Browning passed away, on the very day that his last book of poems, "Asolando; Fancies and Facts," was published; but his body was taken to England, and buried in Westminster Abbey on the very last day of 1880.

Edward Fitzgerald, who was born in the same year as Tennyson, is known for his wonderful translations of poetry from other languages into English. He is best remembered by his translation of a long poem called the "Rubáiyat of Omar Khayyám," a celebrated Persian poet, who lived centuries ago. Fitzgerald translated Omar's thoughts and clothed them in his own words, and the result is a beautiful and moving poem.

## Matthew arnold's busy life and his work

Matthew Arnold, who wrote "The Forsaken Merman," on page 3401, was born in 1822 at Laleham, near the place where the battle of Hastings was fought. He was a son of Thomas Arnold, a very famous head master of Rugby, and with 

the exception of one year at Winchester, all his schoolboy days were spent at the great school of which his father was the head. From Rugby he went to Balliol College in Oxford University, and graduated in 1844 at the age of twenty-two. He did not, like Tennyson, devote all his time to writing poetry. Rather, he made it the pastime of a very busy life, and, perhaps for this reason, most of his poems are short.

After his graduation he received a fellowship in the university, and later became private secretary to Lord Lansdowne, who was one of the most powerful statesmen of his time. Lord Lansdowne made him an inspector of the primary schools, and in this position he did much to raise the standard of education in England. In 1857 he was made professor of poetry at Oxford, and for ten years he filled this chair, in addition to fulfilling the duties of his inspectorship, a post which he held until two years before his death. Besides this he wrote books and reports on education, and critical essays.

Critics do not as a rule rank Matthew Arnold as high as Tennyson and Browning. Nevertheless his poetry is of a very high order, and many people think that "Thyrsis," an elegy written on the death of his friend, the poet Clough, is one of the finest elegies in the English language. "Thyrsis," "Sohrab and Rustum," "Balder Dead," "The Forsaken Merman" are favorites among his poems. He is even better known for his critical essays than for his poetry, and every high school student should study at least one of these essays, if only for the sake of studying his style.

### Dante Gabriel Rossetti, The Painter Poet

Dante Gabriel Rossetti, who was six years younger than Matthew Arnold, was born in London. His father, who was an Italian, was professor of Italian at a London college. Young Dante Gabriel left school when he was about fifteen, to study painting, but in such a home as his, his education in languages and literature went on insensibly in fine conversation and daily reading. His father was a poet. His sister, Christine, whose beautiful poem "The Goblin Market" you will find on page 1867, became almost as famous as Dante Gabriel, and his other brother and sister are well known for their literary work.

As we have just said, Rossetti left school to study painting, and it was in this art that he first won his fame. He studied at a school called Cary's Art Academy, at the Royal Academy Antique School, and with the artist Ford Maddox Brown, and became a member of a famous band of painters called the Pre-Raphaelite Brothers, who sought to bring back to the art of modern painting the simplicity of the early masters: Rossetti was really the chief spirit in this movement, and had a great influence over the young artists of his day. He is classed with such painters as Holman Hunt, Millais, Sir Frederick Leighton, Burne-Jones and Alma Tadema. He had no less influence as a poet, and it is as a poet that we must think of him here.

He does not rank among the great poets, but his writing has wonderful beauty, and he had a remarkable power of writing so that his readers can see the same pictures that he saw. His famous poems are "The Blessed Damozel," a series of beautiful sonnets, which he wrote in memory of his wife, and a ballad "The King's Tragedy" in which he tells the story of Kate Barlass. He died in 1882 at the age of fifty four.

# WILLIAM MORRIS, A POET WHO MADE BEAUTIFUL THINGS

Like Rossetti, William Morris was a painter as well as a poet, and he was also a furniture maker. He was born in Essex, near London, in 1834. His childhood home was near Epping Forest, through which he roamed at will, and there he gained a love for nature, which he kept all through his life. It is said that he could recognize every wild bird of that forest on the wing. From a private school he went to Marlborough College and from there to Oxford. At first he intended to become a clergyman, but at Oxford he changed his mind, and determined to study architecture, and at the end of about a year his friend, Burne-Jones, persuaded him that his real genius lay in painting. Meantime he had begun to write, and in 1858 he published his first volume of poetry.

Although he studied both arts, he was destined to be neither an architect nor a painter. After his marriage in 1859, he decided to build a house, which should be, he told his friends, "a small palace of art," and this house was the beginning of the artistic movement of which you

may read in the "Makers of Beautiful Things." He had such difficulty in finding, for his house, furniture and fittings that were not heavy and ugly, that he had them made from his own designs. Furniture, wall-paper, hangings, stained glass, everything that was required for the house was made. From this it was an easy step to becoming a manufacturer, and with his friends, Burne-Jones, and Rossetti, and two others, he formed a partnership to manufacture wall-paper, tiles, tapestry and furniture.

Amid all this activity he found time to write tales and sketches, and the poems which place him high on the list of the minor English poets. Most of his poetry is story-telling in verse, in which he followed the model set by Chaucer. His busy life came to an end in the year 1896.

## A LGERNON CHARLES SWINBURNE AND HIS MUSICAL VERSES

Algernon Charles Swinburne, who was a close friend of both Rossetti and Morris, was perhaps a greater poet than either, though not so fine a man, and he had not the ability that his friends had, of expressing himself in art as well as in words. He was born in London in the year 1837, but spent all his early years in the country. His grandfather had a home in the north of England; his father, who was an admiral in the British navy, bought a house on the Isle of Wight, and his family spent the warm summer months in the north, and the rest of the year in the south. The poet spent his schoolboy years at Eton, and from that school naturally went to Oxford, where he stayed three years, but left without graduating.

He must have been writing at Oxford, for the year that he left he published two dramas, "The Queen Mother" "Rosamond." Five years later he published "Atalanta in Calydon" and other poems, which some one said introduced into the language "new astonishing melodies." From this time on he published many poems, and, while his work is not very well known by ordinary readers, it is generally conceded by students that he brought back to English poetry a rich flow of song that it seemed to have lost.

### POETS OF OUR OWN TIME, MOST OF WHOM ARE STILL ALIVE

Rudyard Kipling was born in 1865 in Bombay, where his father was curator of the museum. He was sent to England

to school, and after his return to India, at the age of seventeen, he became an assistant editor of a newspaper, and began to write the stories for which he is so well Many of his poems are very fine, especially those that are scattered through his volumes of short stories. He has published three volumes of poems, "Barrack Room Ballads," "The Seven Seas" and "The Five Nations."

William Butler Yeats, the best known of the Irish poets who have come to the front in what has been called "the renaissance of Irish poetry," was born in 1865 in Dublin. When he was a little boy, he went to school in London, where his parents lived for some years, but after a time they went back to Dublin, and he was sent to school there. At first he meant to be an artist, like his father, but his desire to write was too strong, and he began to send poems and articles to the Dublin periodicals. He has written much poetry, all of it dealing with Irish life, history and folk stories, and he has also written a number of plays.

Stephen Phillips, who lived from 1868 to 1015, attended Shakespeare's old school at Stratford-on-Avon for a time, and perhaps the association gave him the idea of becoming an actor at the end of his first year at Oueen's College, Cambridge. Afterward he taught history to army students, but later on abandoned teaching to write plays and poems.

Two poets who are better known than Phillips in this country are John Masefield and Alfred Noyes. John Masefield, who was born in 1875, led a life of adventure in his youth. As a boy he became a sailor, and afterward spent some time in New York, where he was glad to work with his hands. Then he went home and began to write plays and poems and stories of the sea. His best poems are poems of the sea, because they are drawn from his own experience.

Alfred Noyes, who was born in 1880. received quite a different training, for he was educated at Oxford, and adopted literature as his profession in his college days. He has written fine poems, but it is too soon to say how many will live.

The same thing may be said of all these later men. No one can tell how many of the men, whom in our day we call great. will be able to stand against the verdict of generations that are to come.

THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 6111. 

# The Book of ALL COUNTRIES



Santo Domingo, the Capital of the Dominican Republic.

### THE ISLANDS OF THE WEST INDIES

THE history of the tropical islands of the West Indies is one long tale of stirring adventure—of Spanish treasure hunters, corsairs, buccaneers and bloody sea fights. Before the time of Columbus, there were legends of enchanted islands, far out in the Atlantic, that disappeared from view even as adventurous sailors were about to land upon their shores.

Look at the map of the United States and you will see four large islands stretching more than 1,300 miles eastward from the entrance to the Gulf of Mexico, and forming the northern shore of the Caribbean Sea: Cuba, Jamaica, Haiti and Porto Rico; these are the Greater Antilles. Curving outward and downward from Porto Rico until it almost touches the coast of South America is a chain of smaller islands which form the eastern end of the Caribbean; these are the Lesser Antilles. There is still a smaller chain of islands, the upper end of which almost touches Florida; these are the Bahamas, which are not a part of the Antilles at all. There are nearly 100,000 square miles of land in these islands, of which Cuba has almost onehalf; Haiti, Jamaica and Porto Rico are next in size. Trinidad, another of the larger islands, lies away down at the lower end of the Lesser Antilles, so Copyright, 1918, by M. Perry Mills.

close to the South American coast that many always think of

it as a part of that continent. About the centre of the outer edge of the Bahamas is a tiny island of special interest, called Watling or San Salvador, because here it was long supposed that Columbus first trod on American soil, though some historians think that Cat Island. to the northwest, is the island which Columbus called San Salvador in the mistaken belief that he had reached India by a shorter route. The two original tribes of "Indians" whom Columbus and the first explorers found were called the Arawaks, and the Caribs. The first were a gentle race which were quickly exterminated by the Spaniards, but the Caribs fought for every inch of their land, and a few of them still survive.

# THE SPANISH GOLD SEEKERS EXPLORE THE ISLANDS

The first Spaniards, who accompanied Columbus on his later voyages, or went with the leaders who followed him, were fortune hunters. They did not want to till the soil; they did not even want to dig the gold which they hoped to bring back to Spain in such vast quantities. Work of any kind was unpleasant, and their purpose was to force the natives to dig gold for them. For this reason the first Span-

rio.4

ish settlements were planted on the shores of Cuba, Haiti and Porto Rico, those big islands in whose mountains some gold was found. The low and sandy islands of the Bahamas, though first discovered, were neglected and left to other nations to settle or colonize. For the same reasons the Lesser Antilles were never settled by the Spaniards, though they claimed them as long as they possibly could.

The peaceful Arawaks, whom the Spaniards found living in the Bahamas and Greater Antilles, were not of the stock of which slaves are made. When they resisted the efforts of the Spaniards to force them to work in the mines, they

# NEGRO SLAVERY IS INTRODUCED ON THE PLANTATIONS

The Spaniards who remained behind gradually discovered that sugar, an expensive luxury in Spain, could be produced from the fertile soil of Cuba, Haiti and Porto Rico at a large profit. They had learned from the Arawaks how to plant and smoke tobacco, and a demand was also growing at home. Cotton brought better prices than wool. This was the beginning of the rich trade which sprang up between Spain and the West Indies, and the need of labor to work the large plantations brought with it a trade in negro slaves. Large numbers were imported every year from the west coast of



Kingston, the capital and chief port of Jamaica, is well located and has an excellent harbor. The town has many modern improvements, such as electric lights, street railways, and an abundant water supply. The suburbs are noted for their beauty, and the most attractive homes are outside the city. The town is kept clean and is healthful, which is rather unusual for a town in the West Indies.

were butchered. Those that were captured died soon after. In less than a hundred years after the first appearance of the Spaniards, there were only sixty families of natives in Cuba, and the neighboring islands had suffered in the same way. The Spaniards did not interfere with the Caribs, natives of the Lesser Antilles, a stronger and more warlike race.

As soon as the Spaniards found that gold was not so plentiful in the Antilles as they had hoped, the treasure hunters went further; Cortes to Mexico, to rob the Aztecs; others sailed to the Spanish Main, as the South American coast, from the mouth of the Orinoco to Darien, was called, in search of the fabled kingdom of gold, which they named "El Dorado."

Africa. If you were to make a trip to the West Indies to-day, you would see how many black people and how few white people are living there now.

The ships of France, England and the Netherlands were at this time in search of new markets. They ventured to the Spanish islands, at first in the hope of picking up profits. When the Spaniards would not allow this, these vessels were used as slave ships. Then these merchant pirates began arming their ships and fell to plundering the settlements or to lying in wait for the treasure galleons of Spain and capturing them.

One of the most prominent of these sea rovers was Sir John Hawkins, who made three trips, between 1562 and 1567,

from the African coast, with slaves, to Hispaniola, as Haiti was called. On his third trip the Spaniards destroyed four of his five ships. At that time he had with him Francis Drake, then only a boy. Five years later Drake went forth in command of a venture of his own and raided the Spanish settlements on the Isthmus, though there was no war between England and Spain at the time. After the destruction of the Spanish Armada by the English, Spain began to grow weaker as a nation, and at the conclusion of peace with England, Spain was content to keep only the four islands which she was occupying, Cuba, Haiti, Porto Rico and Jamaica.

The first English settlement in these islands was made in 1624, by Sir Thomas Warner, at the head of a number of gentlemen adventurers. They first took possession of the island of St. Christopher, often known as St. Kitt's. The Caribs gave them a hard fight, and they had to call upon a French corsair, by the name of Esnambuc, for help. As a result, part of the island was given over to the French. In 1636 the Dutch made a settlement on St. Eustatius, and, in 1646, French colonists landed on St. Bartholemew.

The fierce Caribs, however, were by no means passive during these attempts to deprive them of their land. For many



The Bermuda Islands include 360 small islands, but Bermuda proper is three times as large as all the others together. Hamilton, a part of which is shown in the picture, is the largest town. The islands are of coral formation and are very beautiful. There are no streams, and people depend upon the rains for fresh water. Everywhere you will see that cisterns are provided for the storage of drinking water.

## OTHER NATIONS DEMAND A SHARE OF THE SPOILS

The English, the Dutch and the French began to occupy the smaller chain of islands, the Lesser Antilles, about this time. The Dutch West India Company was formed in 1621, the French in 1626, and the first English patents which led to plantations in this region fell between 1623 and 1627. Each one of the great European powers had a different reason for wanting to take possession of the islands. Spain wished for gold and mineral wealth, France desired trade and settlements, and the Dutch hoped to cripple their ancient enemy, Spain, by cutting off the sources of her wealth. The English intended to settle permanently.

years they fought the invaders of their islands, with more or less success. Finally, the few who remained, realizing that they must some day be overcome, made an agreement with the whites whereby the two islands of St. Vincent and Dominica were to be given up to them. Later many of them went to an island off the coast of Honduras. There, in Honduras and St. Vincent, the last of the fighting race of Caribs may be found to this day.

# THE ISLANDS PASS FROM HAND TO HAND

For nearly two hundred years after the first settlements of these islands, they frequently passed from hand to hand, for during this long period there was hardly a year in which at least two of the great powers were not at war with each other. The most important of these changes, which was permanent, was the taking of Jamaica by an English fleet under Admiral Penn, the father of William Penn, in 1655.

Aside from the four nations of which we have spoken, a fifth element entered into the fighting. During all this time the Spanish settlements in Haiti had been in the eastern part of the island, around Santo Domingo, while the western part was left to the natives, who lived by hunting wild cattle and hogs. Here the roving traders and adventurers would put in for supplies of smoked meat. They were largely French and English, and were later joined by some French who had been driven away from the island of St. Christopher.

# THE RECKLESS BUCCANEERS RULE HAITI

This little colony of "boucaniers," or "meat driers," which is what the French word means, settled in the island called Tortuga, where they did a profitable business, and their little island became the centre of supply for the rovers and smugglers. These buccaneers, as the English called them, were raided by the Spanish in 1638. While away on a hunting trip their settlement was burned. In revenge they got together a fleet of vessels and made the robbing of the Spanish their chief business and pleasure. It was partly due to them that Spain lost one of her four big islands, Haiti.

Let us see how this came about. The "Brethren of the Coast," as they called themselves, went to the western end of Haiti. They were joined by other Frenchmen, who laid out plantations, brought slaves to work on the land, and prospered. Before the Spaniards were fully aware of the danger these men had built a fort at the head of the bay which sheltered them and called it Port-au-Prince. After a war between Spain and France, which ended in 1697, Spain gave up this end of the island to France.

# THE NEGRO REVOLT, AND THEIR LEADER, TOUSSAINT L'OUVERTURE

Ninety years later, on the eve of the French Revolution, this French colony had twice the population of the Spanish colony, and possessed more than twice its wealth and foreign trade. Then came the Great Revolution in the mother

country, declaring all men equal. The white planters accepted the new order, but they refused to apply its principle of equality to the black slaves. Even the free negroes were not allowed to become citizens. The result was an uprising of the negroes, led by a young mulatto who had been educated in Paris. This so alarmed the French government, especially as the English and Spanish forces were making a successful attack on the colony, that the negroes were declared free in 1793. This brought all the slaves over to the side of the French Republic.

At their head was now perhaps the most remarkable man the negro race has ever produced, Toussaint L'Ouverture. He was a full-blooded black, born a slave, but with a genius for commanding men. The French saw his great ability, and made him commander-in-chief of the native forces. He drove out the English and Spanish troops, and, in 1795, France and Spain made a treaty by which the Spanish colony on the eastern end of the island was ceded to the French. saint L'Ouverture became governor-general and practically dictator. In 1801 he proclaimed the absolute independence of Haiti, with himself as supreme chief. Napoleon, who was then in power, sent out an army of 30,000 men, and a long war followed. Yellow fever came to the aid of the struggling blacks. The French general asked for a conference. which Toussaint L'Ouverture granted and attended in person. Here he was seized and carried over a prisoner to France, where he died in prison of starvation.

Meanwhile the blacks continued to fight. Finally the French forces were penned in and forced to surrender, and so France lost the greatest of her West Indian colonies. The Haitians declared their independence in 1804, and a negro, General Dessalines, was proclaimed president for life. Very soon he declared himself emperor, with the title of Jean Jacques I, but he proved to be such a brute that two years later his own soldiers waylaid and killed him. Until 1844, except for a little time when Spain regained her colony at Santo Domingo, the whole island continued under one government as the Republic of Haiti. Then there was a split, and the old Spanish colony became the Dominican Republic.

### HE DOMINICAN REPUBLIC

The Dominican Republic is nearly double the size of the Haitian Republic, but has only 700,000 people. Of these about one-tenth are Spanish, while the rest are principally colored people. The pure blacks are very few in number in Santo Domingo. There is a national congress of twelve senators and twentyfour deputies. Each senator represents a province, while the deputies are elected in proportion to population. American and English capital has been encouraged,

The population of Haiti is somewhere between 1,500,000 and 2,500,000, of which about ninety per cent is pure black. The remainder is colored, as those partly white are called. The few whites are mostly foreigners, as the French planters were expelled shortly after the declaration of independence. The exports are cotton, coffee, cacao, mahogany, tortoiseshell, zinc and copper, but the resources of the country are practically undeveloped. So strong is the prejudice against foreigners that they are not allowed to hold real property.



Nassau, situated on the island of New Providence, is the most important town in the Bahamas. These are the government buildings. The governor has authority over twenty inhabited and many uninhabited islands making up this group, but the total population is very small. The principal exports are sponges, hemp, lumber and pineapples. During the Civil War, Nassau was an important port for blockade-runners.

but there has been much disorder. There are a university, two colleges and many schools. The exports are chiefly sugar, coffee, cacao, mahogany, hides and honey, of which about half goes to the United States. In May, 1916, the United States landed troops to preserve order, and now controls the island.

REVOLUTIONS IN HAITI, WHICH

FORCED THE UNITED STATES TO ACT The history of the Haitian Republic has been a very stormy one. Almost every ruler, whether emperor or president, has met a violent death. The uprisings have been so numerous that the United States government was compelled to send a military force to restore law and order, and it is still held there. <del>~~~</del>

# SPAIN IN PORTO RICO, THE "RICH PORT"

After the capture of Jamaica by the English and the loss of their colony at Santo Domingo, the Spaniards kept only Porto Rico and Cuba. Like Jamaica, Porto Rico was much neglected; all through the seventeenth and far into the eighteenth century the beauty and riches of the island were overlooked. In 1700 there were only three villages on the island, and in 1765 there were only 45,000 inhabitants. At last Spain began to wake up to the value of this rich possession. Spanish peasants were sent out as real colonists and negro slaves were imported. In 1859 the Spanish Cortes, or legislature, granted a constitu-

tion to Porto Rico, which made it a province of Spain instead of a colony, and gave it representation in the Cortes. The way in which the United States gained possession of this island is told in another place.

The history of Cuba is by far the stormiest of all Spanish West Indian possessions. Until the latter part of the eighteenth century the colony did not grow much. A good many French immigrants came into Cuba after the revolution in Haiti. Wealthy planters from the South American colonies also came, and began to develop the land. governor-general, however, was always a despot, with the power of a military commander in a besieged city. In 1879, after the first revolutionary movements had been initiated, the Cortes granted representation to Cuba, as it had done to Porto Rico, but the elections were so controlled that the deputies were nearly all natives of Spain, and not of Cuba.

The further history of Cuba under Spanish rule is that of a series of revolutions. Beginning with the organization of the Black Eagles in 1827, one uprising followed another until 1805, when the revolution was organized which terminated only with the active intervention of the United States, three years later, and the final loss of Cuba and Porto Rico

to Spain.

The United States had declared that it would not keep Cuba, and held to the promise. When the Spanish troops left, the United States took control, but turned over the island to the Cubans in 1901. In 1906 a revolution broke out, and the United States again held control until 1909. Cuba is a republic, with a President, a Vice-President, a Senate and a House of Representatives. The population is about 2,500,000. Havana, with 350,000 inhabitants, is the largest city. The island has some important minerals, valuable forests and much fertile soil. It is one of the leading sugar-producing countries of the world.

# TAMAICA, THE CHIEF POSSESSION OF GREAT RELEASE

After the English occupation of Jamaica, Port Royal and Kingston, the chief ports, became the headquarters of the cruising buccaneers, rovers and slave traders. Jamaica was always the best customer for African slaves, which indicated the rapid growth of sugar plant-

ing. From this cause came the greatest disturbances in its history. Many of the blacks escaped to the mountains, where they lived in savage communities. These runaways, known as maroons, would descend from their strongholds and raid the settlements. An irregular warfare was carried on for many years. Finally peace was concluded by offering the maroons a reservation on which they would not be disturbed so long as they did not molest the whites. There were also violent uprisings of the slaves, even after they had been freed, in 1833. were put down with a cruelty inspired by a fear of their vast majority in numbers.

THE EXPORTS OF JAMAICA

Throughout all the British West Indies the emancipation of the slaves caused heavy losses to the sugar planters. Together with this event came the discovery that sugar could be extracted from the beet as well as from cane; these two causes together seemed at one time to threaten the complete ruin of the West Indian planters. The sugar industry has never quite recovered. To-day bananas are Jamaica's chief export, followed by sugar, coffee and rum. Tobacco is of growing importance. As yet only a fourth of the island is under cultivation. Of the total population, numbering about 800,000, only 16,000 are white. are about 20,000 Asiatic coolies, mostly Hindoos, in Jamaica, who have been imported as plantation laborers. smaller islands are attached to Jamaica, for governmental purpose. Kingston, the capital, is an attractive city.

### THE BAHAMAS DURING THE CIVIL WAR

The Bahamas, neglected by the Spaniards and infested with buccaneers and pirates during the days of much fighting, became a Crown colony in 1787. settlers were largely Loyalist colonists from the United States, who were expelled during and after the American Revolu-It was the contraband trade, brought by the Confederate blockade runners during the Civil War, that gave these little islands, and especially Nassau, their chief port, their first prosperity. Trade is still largely with the United States, consisting mostly of sponges, hemp, and pineapples.

In the Lesser Antilles, Great Britain possesses most of the islands. Of these 

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Barbados is the most important, though it is only twenty-one miles long and fourteen across. For its size it is one of the most thickly populated spots on the face of the earth. The inhabitants number 200,000, of which only one-tenth are whites.

### THE LAKE OF ASPHALT

Trinidad is a large island, close up to the mainland of South America. At first it was thinly populated by the Spaniards. but after one of the several wars between them, Spain ceded it to England. The population is the same as that of Barbados, but hardly one-eighth of the land

El Dorado, the land of gold, which led so many Spanish grandees across the Western Ocean. The Dutch were the first to make permanent settlements here, but when Holland was dragged into French politics, in 1796, she lost to Great Britain the Cape of Good Hope, Ceylon and the Guiana settlements.

English settlers from Barbados attacked these Dutch settlements and took them with little difficulty. They were restored in 1802, but the next year Great Britain again took over what is now known as British Guiana. The colony is to-day of about the same area as Great Britain. Its government is still much



At first glance one could think that this street might be anywhere in North America, but it is really in Port of Spain, on the island of Trinidad. The city is one of the finest towns in the West Indies, and the scene shows a part of the European quarter. The building on the right of the picture is the English church.

is under cultivation. On the island is a great lake of asphalt, and this is one of the chief articles of export. Here, too, the sugar industry has been injured, but of late, cacao, coffee and tobacco have been exported at a growing rate.

### TAINLAND POSSESSIONS OF GREAT BRITAIN

British Guiana and British Honduras, though mainland possessions, belong with the British West Indies. Both were brought under the Crown during the wars of the French Revolution. Guiana was the name given to a vast area east of the Orinoco River. Sir Walter Raleigh first penetrated these wilds in search of <del>~~~</del>

the same as when held by the Dutch. Its staple crops are sugar and cotton, and the negro element is very large.

British Honduras arose out of settlements of wood-cutters, who migrated in the eighteenth century to the coast of Yucatan. They claimed to be independent of the rulers of Mexico. From about 1756, England began to extend her protection to these settlers about Belize Bay, though she did not dispute the rights of Spain. Belize was the port of shipment for the dye woods and other timber. There a form of local self-government grew up. In 1798, Spain attempted to expel these intruders, but the settlers,

aided by English sailors, repelled the assault and attained a sort of independence recognized by both powers. British Honduras is now a Crown colony of Great Britain, and prospers because of its wealth of mahogany.

THE GOVERNMENT OF THE ISLANDS OF THE WEST INDIES

The governments of the British West Indian colonies do not give much power to the people. The reason is simple. It is the great number of negroes, who do not know how to govern themselves. In the Bahamas, the negroes have little or no political power. government of the colony is chiefly in the hands of a governor, an executive council and a legislative council appointed in England. There is a legislative assembly of twenty-nine members, elected by the people, but only those having property can vote. Few negroes vote and the electors are mainly merchants and property owners.

In Jamaica the negro outbreak of 1865 led the planters to desire the stronger government of a Crown colony. In 1884, a part of the legislative council was made elective. The Barbados House of Assembly is very old. Trinidad and Tobago, a small neighboring island, have a legislative council in common, nominated by the Crown; they have never had

representative institutions.

## FRENCH TERRITORY IN THE WEST INDIES

Though France can no longer be rated as a colonizing power in the West Indies, she still possesses two important islands in the Lesser Antilles, Martinique and Guadeloupe, besides French Guiana on the mainland. The first of these will be remembered because of the great eruption of Mt. Pelee. The island is about fortyfive miles long and fifteen across, but extremely mountainous. Martinique, as the centre of French life and activity in the West Indies, was much disturbed by the French Revolution. A serious outbreak of the negroes occurred in 1831, but was suppressed. All free persons were given the political rights of French citizens, and in 1848 all the slaves were emancipated. The present population is estimated at 185,000, of which 10,000 are whites and the remainder colored. Like Guadeloupe, Martinique is a department of France, with one senator and two deputies to represent it. The governor

and the council are appointed by the home government. French Guiana has a population of about 50,000. The chief products are cocoa, sugar, ginger, coffee and fruits. It has valuable gold mines.

We remember Martinique chiefly because it was the birthplace of the unhappy Empress Josephine, and the ruins of the house are still to be seen. Off the coast of French Guiana is Devil's Island, where Captain Alfred Dreyfus was confined for four terrible years, from 1895 to 1899.

THE DUTCH WEST

Curação, off the coast of Venezuela and west of Trinidad, is the headquarters of the Dutch colonies in the West Indies. Not only the neighboring islands of Buen Aire and Aruba, but Saba, St. Eustatius and part of St. Martin in the Northern Caribbees, are dependencies of Holland, administered by deputies of the governor of Curação. This island is about forty miles long, with a surface of arid plains. The inhabitants number about 30,000, of which about a third are negroes. There is a deficiency of water, and the people are compelled to store rain water. Corn, cotton, sugar, tobacco and fruits, phosphate of lime and the well-known liqueur, curação, made from oranges, are the chief exports.

# NEW TERRITORY OF THE UNITED STATES IN THE WEST INDIES

Up in the northern part of the Lesser Antilles, close to Porto Rico, are three islands which are of special interest to the United States. They are St. Thomas, St. John and St. Croix. St. Thomas, the most important, is only thirteen miles long and three wide. It is still a centre of traffic, as it has been since the early days, and nearly all of its 15,000 people, of whom nine-tenths are black or colored, live in and about the seaport, Charlotte The buccaneers and pirates Amalie. were not slow in finding this sheltered bay and using it as a refuge. In 1671 the Danish West India Company took possession and established a trading station. St. John and St. Croix together have about as many people as St. Thomas, but their trade is small. United States has desired these islands because of the need of a harbor for warships in the West Indies, and in 1916 purchased them for \$25,000,000. tell more of them in another place.

THE NEXT STORY OF COUNTRIES IS ON PAGE 6097. 

# THE APPROACH TO HAVANA, THE CAPITAL OF CUBA



lavana Harbor, one of the safest in the world, has a narrow entrance, the left-or eastern-side of which is shown in the picture, with the old fort, El Morro, protecting to passage. On the opposite-or western-point you may imagine a companion fort, La Punta. These two sentinels have been standing on guard since about 1600.

# THE MOTOR CAR THAT RAN LONG



One of the earliest motor carriages to run on the roads in England.



A wonderful steam motor carriage that ran between London and Birmingham in 1832. ♦♦♦♦♦♦♦♦6050♦♦

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A wonderful motor coach driven by steam more than eighty years ago.

# TRAVELING LONG AGO HOW OUR ANCESTORS TRAVELED

MOST of us have learned how railway traveling came into being, and we remember, therefore, the strange difficulties our ancestors had in getting about the country in the days before the iron horse.

But many of us have not thought, perhaps, of the troubles which lay in the way of getting from city to city, or about the cities themselves, in the olden days such as those in which Shakespeare lived. A man who was setting out on a journey of a hundred miles by road thought it so perilous an adventure that before starting he would sometimes sit sadly down and make his will, and bid farewell to all his friends, in the belief that there was every chance of his never seeing them again. And the dangers of town travel were quite as real and alarming as those which were supposed to await the daring man who traveled from London to York by the stage-coach.

The streets, were not lighted, and after dark the smaller thoroughfares teemed with robbers who killed or robbed as a means of livelihood. Highwaymen, mounted on swift horses,

prowled about the outskirts of London, and footpads infested the streets of the city itself. Therefore, except for those

who were rich enough to keep a coach, to venture into the streets at night was a serious undertaking not to be dreamed of unless link-boys, carrying flaring torches, walked before the party to light up the way. Iron link-stands supporting a ring, in which the link or torch might be placed, may still be seen at the doorways of old London houses.

Except on horseback or by coach, there was no way of getting about London by day save by walking or taking a boat on the Thames. It was not until the year 1605 that the first cab ever seen in England appeared on the streets of London. A few old coaches which had been sold by private owners were bought, and sent forth for public hire. They were called hackney coaches. There is some doubt as to the meaning of the name, but the belief is that they were so called because the first cabs started from Hackney. The new idea became very popular. It was a great thing for Londoners of that age to be able to go

into the streets, call a cab, and ride to the place to which they desired to go.

To those who could afford to pay the fare, it was as if the magic carpet had suddenly been placed at their disposal. Ladies could go out in pretty dresses and shoes, saved at least from the horrible condition of the streets and roads, which at that time were a disgrace. The London highways were then full of pits and holes, in which collected mud and filthy water and garbage thrown from shops and houses. The new carriage might bump and jostle as it crashed over these uneven ways, but, at any rate, the rider would arrive dry-shod and with costume unspoiled.

But the public never gained an advantage of this sort without a great outcry from somebody or other. The Thames boatmen were furious at the success of the cabs, and one of their number, John Taylor, called "the water poet," wrote an angry pamphlet against the cabs and

the people who used them.

Soon the success of the coaches induced an old retired sea captain, named Baily, to set up coaches specially built for the purpose. He did not buy the old, worn-out family coaches, but built smaller and lighter vehicles, which were a great improvement. Owing to the badness of the roads, these required two horses to pull them; but it was a great thing to get them at all, for here was a new idea—carriages made specially for the convenience and comfort of people who could not afford to have their own.

The new cabs took up their position where St. Mary's Church now stands in the Strand, which therefore became the first public cab-stand in Great Britain. The new vehicles were a great success, and they were speedily copied by other

men.

# THE KING WHO TRIED TO STOP THE CABS

All sorts of objections were raised against them. People at that time could not understand that the right to ride should be enjoyed by any but the rich. People complained that the cabs wore out the roads—these wonderful roads which were already full of chasms and pitfalls. They did not see that they must build better roads; they simply cried out that the cabs must be prevented from running. Charles I. took sides with the enemies of the cab, and issued an order declaring that the cabs were unnecessary and dangerous, and that their numbers must be limited.

WHEN PEOPLE WERE CARRIED ABOUT IN SEDAN CHAIRS

But even King Charles could not sweep away so desirable an aid to travel as the cab without offering something in exchange, and the substitute that he offered was the sedan chair. This had just been introduced into England from Europe, and took its name from the town of Sedan, in France, where it was first used. It was a vehicle like a small cab, with side windows and entrance through a hinged doorway at the front, but it had no wheels, and men were to carry it on two stout poles. The occupant could raise the roof if he wanted to stand. A Court favorite was to have the sole right of providing these chairs and of drawing the money which they earned.

People cried out against the new invention. They hated the thought of men being employed as beasts of burden. But the idea soon became popular, and people had sedan chairs built for private use all over the country. Alike in Paris and London the sedan-chair man soon became an institution. The vehicles themselves were often beautifully painted. and they continued in use up to a century or so ago. At Peterborough they were used until 1860; Exeter had one until 1879; Newcastle until 1885; and Bury St. Edmunds until 1890. They are still in use in the public baths at Ischl in Austria, and in the city of Bath, England, as a mode of transit to the medical baths. The chair can be taken into the bedroom and the invalid carried to the baths without exposure to the outer air. The poles are so arranged that the chair may be carried up and down stairs.

In New York, if we happen to go for a visit to that wonderful city, we can see two sedan chairs in the Metropolitan Museum. Both of them were made and used in Europe in the eighteenth

century.

Happily, the sedan chairs did not kill Heavy taxes were put on the cabs. these vehicles, which were so much disliked by Charles II. that he issued a proclamation forbidding them to be used at all. No notice was taken of this proclamation, and, after the Great Fire had led to the making of wider streets, the number of cabs increased very rapidly.

# THE COMING OF THE HANSOM CAB

The great change came with the appearance of the hansom cab. Many different types were tried. Some opened at the back, with the driver sitting perched high up above the door; others had the driver's seat at the side, and in all sorts of queer positions. It was Joseph Aloysius Hansom, an architect, who designed the cab which bears his name. The hansom was patented in 1834, but was afterward greatly improved. It was the favorite vehicle for traveling about

been hung by long straps from the four corners to pillars erected upon the under carriage. After the first few months the omnibus did not pay, and Paris saw no more omnibuses for another 150 years. Soon after their revival in Paris, a Frenchman named George Shillibeer gave London its first buses. They ran from Paddington to the Bank of England, at a fare of one shilling for the whole journey, and sixpence for the half journey. The service started on July 4, 1829, and the vehicles, first called omnibuses, came to be known as "shillibeers." after their



HOW VISITORS FROM THE COUNTRY ARRIVED IN LONDON A HUNDRED YEARS AGO

London until the motor-cab appeared, and was also much used in the United States.

But cabs are for the few, and the hansom brought no advantage for the masses of the people, who could not afford to take a cab. For these came the omnibus, first seen in London in 1829. It was not an English invention. The first bus appeared in Paris in 1662. The idea originated with Blaise Pascal, the great writer, and was carried out under favor of Louis XIV., the "Grand Monarch." It was in his reign that steel springs were first applied to wheel carriages. Before this the coach had

inventor. Shillibeer provided papers for his customers to read in the bus, but a rival owner did still better by fitting up bookshelves in his buses containing the newest books of the day. As dishonest people stole so many books, however, the library had to be stopped. Poor Shillibeer was ruined as a bus-owner, partly through rivalry with the railways, and partly through unfair treatment by the Government, which taxed him without mercy. He afterwards started a business in funeral coaches, and so "shillibeer" became the name of the hearse. But for that, buses would probably have been called shillibeers to this day.

# HOW OUR ANCESTORS WENT BY TRAIN



First-class passengers in one of the old-time railway trains in England.



Second-class passengers entering their carriage in the old days.



Third-class passengers traveling in open trucks in the first days of railway trains.

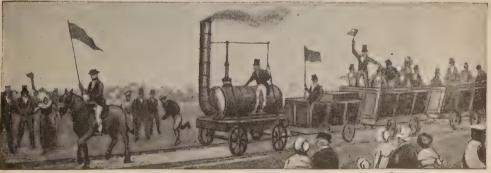
# FIRST BUS, FIRST CYCLE, & FIRST



The first omnibus in London, built and run by Shillibeer, a famous coachbuilder, in 1829.



The earliest kind of bicycle, in which the rider ran along the ground as he sat astride.



The first train in England, with a man riding in front carrying a danger flag. 

people remember the time when buses drawn by horses were the chief public vehicles in New York.

With many improvements, buses drawn by horses flourished until motorbuses were introduced. There were then nearly 4000 horse buses in London, and to run these some 40,000 horses were

London was very slow in adopting the idea of running public vehicles on rails laid on the street. Though such cars drawn by horses had been started in New York in 1832, it was not until nearly thirty years later that an American, George Francis Train, introduced the plan into England. It met with so much opposition on the part of horse owners that it failed. A little later horse cars were again introduced. Then came cars drawn by steam engines, until finally electric cars have become common.

# TRAVELING IN AMERICA MANY YEARS

In the early days before the Revolution the people in the colonies traveled chiefly in their own carriages, or on horseback, as the roads were so bad in many places that no wheeled vehicle could be drawn over them. Often the woman, going to town, to church, or to visit a neighbor, rode on a horse behind her husband or her father.

Two-wheeled vehicles called gigs or chaises were common years ago. You may read about the "Wonderful One-Hoss Shay" in another volume. Generally in the old days people rode in farm wagons without springs. Thousands who went to settle the great West loaded their household goods into wagons which came to be known as "prairie schooners." The women and the youngest children rode while the men and older children walked. At night camp was made on the When several families were moving together the wagons were arranged in a circle at night, for protection against the Indians.

A few coaches ran between the principal towns, which, we must remember, were little more than villages. Most of them were dirty and uncomfortable as well as very slow. The trip which we now easily make in an hour was then a day's journey, and sometimes required a part of the night as well. Very often the passengers had to get out to lighten the load when going up hill, and even

had to push or tug at the wheels when the coach stuck in the mud.

Some of the best coaches, however, made excellent progress where the roads were good, and could be depended upon to arrive on the minute. Horses were frequently changed. When the coach drove up, fresh horses were waiting, the tired team was quickly unhitched, the fresh one was put in, and the passengers were again on their way in less time than is now required to change engines on a fast train. Nearly all of these stage lines, however, went out of business with the coming of the railroad, though in some parts of our country, not yet reached by the railroad, a few old-fashioned stage lines still continue in operation.

Some of them have been changed to automobile lines. Indeed the motor car has opened up some country in the West not yet touched by railroads, and into which horses could not be taken very well on account of scarcity of food for them. This is the so-called "arid region," where very little rain falls. In much of this region, however, the soil itself is excellent and needs only water to produce large crops. In some places great dams have been constructed across rivers flowing from mountains near by, and the water is conducted to the dry region. Other streams will in future be turned into the region, and area of the desert will grow smaller.

In the cities of the United States buses were common in the early days, and still run in a few towns where there is not enough business to pay for putting down rails. But this country has been ahead of any other in furnishing cheap methods of getting about. After the horse cars were introduced, the cable cars followed. These cars were drawn by a moving cable running underground between the tracks. "grip" attached to the car would seize the cable when the gripman on the car moved a lever and the car would be drawn along. When the lever was moved another way, the grip let the cable loose and the car stopped.

The electric car, which was first successful in Richmond, Virginia, in 1888, has, however, succeeded all other means of cheap transportation. Electric cars run on the streets of every city in the United States and Canada. Many towns are joined by these electric \$\dagger \dagger \dagg

# TRAVEL IN THE COUNTRY AND IN THE CITY



In such wagons as these the journey across the plains toward the West was made before the days of rail-roads. These wagons, with their cloth top supported by wooden bows, were often called "prairie schooners." In them were packed the household goods, and the mother and smaller children, while the father and older children walked. Usually several traveled together for defence against the Indians.



Before the days of electric cars, one of the chief modes of travel in American cities was the stage, drawn by two or three horses. In the old days they were sometimes placed on runners in winter. This stage, which has been preserved, once ran on the streets of New York and was one of the favorite methods of reaching Central Park.

Pictures by Brown Bros.



THE FINE COACHES IN WHICH THE RICH TRAVELED LONG AGO

railways and thus farmers can go to town whenever they wish.

Think what these changes have meant to city and country alike. They enable

men to live at greater distance from their work. often in more healthful places. Without them our cities would be more crowded, and intercourse with our friends more difficult.

One reason why so many boys have left the farm has been the loneliness. The country car line and the telephone

have done much to remove the disadvantages of country life. When one can reach the neighboring town in a few minutes, the members of the farmer's family can feel themselves to be a part of the great world. Every year many trolley lines miles of rural are built, and the mileage continue to increase.

> What the future will reveal as to methods of transportation one can only guess. Perhaps the gyroscope car which runs on one rail, and about which we can read elsewhere in this book, will become quite a common sight. Perhaps trolley wires will be strung above the main roads, and vehicles

fitted with motors may run along the road though no rails are laid. It is quite possible that we shall all use flying machines. Who knows?

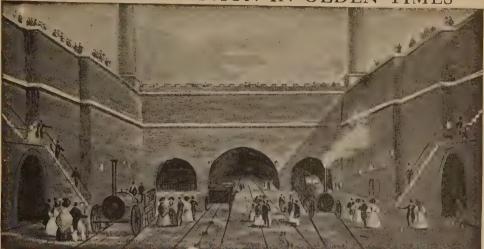
THE NEXT SECTION IS ON PAGE 6146.





THE SLOW WAGONS IN WHICH THE POOR TRAVELED LONG AGO

# A RAILWAY STATION IN OLDEN TIMES



The railway station at Liverpool in the early days of trains.



King Louis Philippe of France entering a train at New Cross Station, London, in 1844.



The opening of the Glasgow and Garnkirk Railway in 1831.

# RIDING HORSES IN THE WILD SEA WAVES—A SEASIDE SCENE 2,000 YEARS AGO



Greek warriors riding their war-horses through the surf-" on the sea-beat coast, where hardy Thracians tame the savage horse." This splendid picture suggestive of the magnificent friezes of ancient Greece, is by Mr. W. Frank Calderon, owner of the copyright.

# Book of NATURE



A striking picture of horses hard at work .- "The Forest Team," from painting by N. H. J. Baird.

EVERY one loves CONTINUED FROM 6002 a horse, and admires him in action. Whether he is an Arab, or thoroughbred, eager for the race: a great Percheron or Clydesdale. throwing his weight against the collar, as he hauls a heavy load

or draws a plough through the fresh earth, or a child's pony, as proud of his pretty trappings as his little rider. every line of a horse's body shows that he is built for strength and power.

Next to the dog, the horse is the most faithful and intelligent fourfooted friend we have, and we have none that has given us truer service, or can show greater devotion to his owner. Even among the nations that despise the dog as unclean, the horse is loved for his faithfulness and intelligence, and a tired and hungry rider will always see that his patient horse is cared for before he attends to his own wants.

Scholars have taken special pains to trace back the history of the horse. Their search has carried them far back, beyond even the picture records of the cave men, among the fossils of animals that had died out even before the cave men lived, and they are able to tell us more about the horse than about any other animal in the world. It is a very interesting story that they have to tell, and it is all the more Copyright, 1918, by M. Perry Mills.

interesting to us because it is believed that the early development of the horse began on

our own continent. Fossil skeletons have been found, in Wyoming and New Mexico, which tell his life story from very

early times.

# HOW THE HORSE IS DISTINGUISHED FROM OTHER ANIMALS

Before we go any further, we must remember that all the members of the horse family are distinguished from other animals by their teeth and their feet.

The teeth of the horse and other members of his family are made of three substances, dentine, such as all teeth are made of, cement and a very hard kind of enamel. As you know, the horse lives chiefly on grass and grain; but his teeth are so made that he can grind this hard food into very small fragments. With constant grinding the teeth wear down, but they do not become blunt, for the cement and dentine wear away more quickly than the hard enamel, which projects just a little above the rest of the tooth and is always sharp enough to grind. teeth are formed a very long way within the bones of the jaws. As they wear away they push upward and downward, and the bone of the jaw grows inward to fill the hollow spaces

left behind. By this wise provision of nature, the horse is able constantly to renew its teeth until it has reached the age of thirty or thirty-five years. teeth have a peculiar form, and from this we are able to say that the elephant, the rhinoceros and the little hyrax, about which you may read on page 1011, are very distant relatives of the horse family.

Now we come to the peculiarity in the feet, which is a distinguishing mark of the horse family. You know that most of the animals walk on their toes, and the peculiar thing about the horse family is that its members have only one toe left to walk on. They have lost all the others.

# THE HORSE'S ANCESTRY IS TRACED BY HIS TOES

The early ancestors of the horse must have had five toes, like all other animals, but from the beginning the horse had to save his life from his enemies by speed. Like all fast runners, he ran on the tips of his toes, which became very strong. Gradually, however, he threw all his weight on the centre toe. With each succeeding generation it became stronger and longer, the other toes were used less and less, and became weaker, and in time they ceased to grow at all. Now if you will look at the picture of the horse on page 6068, you will notice joints which are marked "knee," "hock" and "fetlock." They look as if they were in the legs, but really they are part of the feet. The "knee" and the "hock" are what correspond to our wrist and ankle bones, the "fetlock" is what was originally the upper joint of the toe. The nail has grown out into a thick hoof to protect the toe, and underneath it is provided with a soft cushion called the "frog," so that the heavy animal will not feel a jarring through his body when his weight is thrown on his toes as he gallops over the hard ground. All this is true also of the donkeys and zebras, the other members of the horse family, which all have teeth and feet of the same kind. These distinctions have made it possible to trace the history of the horse back with scarcely a break to his earliest ancestors. We can even say that the second and fourth toes were the last to be lost. and under the skin of the foot there are still to be found two small bones called splints, which are the last remnants of these toes. The pictures on page 3669 will help you to understand this.

# E ARLY ANCESTORS OF THE HORSE LIVED IN WYOMING

The earliest direct ancestor of the horse of which we really know anything, lived possibly three million years ago in the forests of a plain which is now part of Wyoming. It was a slender little beast, only sixteen inches high, and had four toes on its front feet, but only three on its hind feet. This little horse has been given the pretty name of the eohippus or "dawn horse." It was descended, students are certain, from an animal with five toes on each foot, which was the ancestor also of the rhinoceros, the tapir, and perhaps the rodent families. but no fossils of these earlier five-toed ancestors have yet been found.

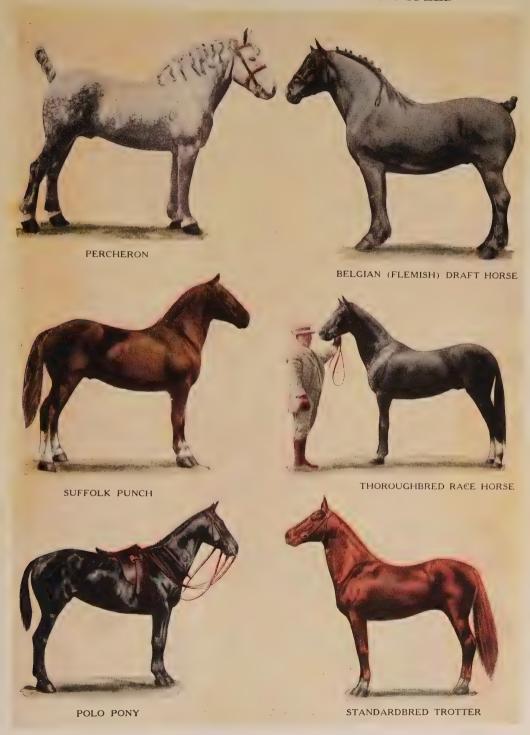
The world in those days was a very different place from what it is now. The climate everywhere was much warmer, and moister; there were no dry plains, but there were many swamps; there were seas where now there is dry land, and land where now there are seas. North America was probably joined to Asia, in the region of Bering Strait, and there was no sea between Arabia and Africa. It is important to remember this, or we shall wonder how horses found their way to the Old World, part of which is really younger than the New World in which we live.

Even before the time that the eohippus lived, some of its ancestors had wandered across Asia into Europe. Part of the skeleton of a near relative of the eohippus has been found in Great Britain, but all the members of this part of the family died out, or perhaps were killed by beasts of prey. Later on Great Britain became an island, and no horses reached it until they were brought by man.

The little eohippus, too, had many enemies,—strange, fearsome, dragon-like beasts still lurked in the forests, and there were fierce, four-footed animals for which it made a sweet morsel. Only the strongest, most intelligent and swiftest of the little horses could escape from their foes.

Hundreds of thousands of years passed. The old enemies of the horse died out. and new ones appeared. Still it steadily grew larger and stronger, and more like the horses we know. First it lost the fourth toe on the front foot, and we speak of it as the three-toed horse. Next the centre toe became so long that the other toes hung helpless on each side, and at 

# HORSES VALUABLE FOR STRENGTH OR SPEED



The Percheron originated in France, the Belgian or Flemish in the Low Countries, and the Suffolk Punch in England. All are valuable draft animals. The swift thoroughbred originated in England through mixture of native and Arab blood. The standardbred is the trotting horse, developed in America from the English thoroughbred. The polo pony is a small quick horse.

Pictures from Photographs by Haas, New York

# THE TOWN HORSE AND THE COUNTRY HORSE



"THE JOY OF LIFE"-A PICTURE OF COUNTRY HORSES, BY LUCY KEMP-WELCH



"HARD LABOR"—A WONDERFUL PHOTOGRAPH OF A TOWN HORSE
This photograph of a horse in a city street is taken from "The Amateur Photographer"; the picture of the country horses is published by permission of the Autotype Fine Art Company, Limited.

# FRIENDS IN SCOTLAND'S FARTHEST NORTH



"VIKINGS"—THE SPLENDID TYPE OF HORSES IN THE NORTH OF SCOTLAND From the painting by Edwin Douglas, by permission of the Autotype Fine Art Company, Limited.



SHAGGY COMRADES—THREE LITTLE PONIES FROM THE SHETLAND ISLES From a photograph by W. Reid.

of tame horses grew up about the rude dwellings of our savage forefathers.

But it was long, long after this that the horse was put to use. The cave dwellers who lived about fifteen thousand years ago, made pictures of the hogmaned horse, on pieces of bone and on the walls of their caves. Some people have thought that some of these pictures show traces of a primitive harness, but this is not likely. It is now thought that the Libyans, who lived in the north of Africa, were the first people who learned to use the horse. It is believed that these people trained the beautiful North African horses to draw chariots, and used them in battle against their enemies, four thousand years ago, or more. Egyptians owned horses at an early date, and used them in the same way as the Libyans. Indeed, it is believed that they got them from the Libvans. About the same time the Assyrians began to use the horses that came from Asiatic steppes, but it is thought that they were trained, and brought down for the Assyrian armies by tribes who lived further north. These people are thought to have been the first to learn to ride the horse, and this is all the more likely to be true because their descendants, the Turcomans and Mongols, have always been noted horsemen.

Before they got the horse, the Assyrians had tame donkeys, and so had the Babylonians and the Egyptians. read in the Bible, in the ancient book of Job, that Job had a thousand donkeys. Abraham had large numbers of them. and it was donkeys which the sons of Jacob brought down to Egypt to carry back the grain that was to save them from famine. Probably they were used to carry burdens on their backs much as they are used in the Western mountain region, under the name of burros. The donkey, however, though it is patient and willing, has not the intelligence or the strength of the horse, and has never been held in the same honor.

Once the horse had been trained for battle, it was soon found that a nation that had no horses could not hope to stand against a nation that had them, and the use of chariots and of cavalry in warfare soon spread. The Egyptians do not seem to have known how to ride, but the Assyrians both rode and drove, and both these people have left us records of

their horses on their pictured walls. These show that Egyptian horses were fine, like the Arabian horses, while the Assyrian horses had the heavy head, and short, stiff mane of the Asiatic horse. The Greeks, who loved horses, had both kinds. Their poets sang about them, and their sculptors made some of the greatest sculptures of horses that have ever been known.

By the time of the Romans, all the peoples of Europe had horses. Even in Britain Julius Caesar found, to his cost, that the people had numbers of horses and chariots. How these horses reached Great Britain and Ireland is not known. They were probably taken across the Channel and the Irish Sea in open boats, just as the Norsemen afterwards brought their horses to far-off Iceland.

The British horses spread northward through the islands. In the south they were quite large; but in the north, where living was hard, and fare poor, they became stunted, and their coats grew long and shaggy to protect them from the winter cold. In this way a new type of horse arose, and from them have come the dear, shaggy little Shetland ponies that children love.

# WHERE THE ARAB HORSES WERE FIRST FOUND

You'will notice that all this time we have said little about Arab horses, and this is because there were none. There were wild donkeys in Arabia, but no horses, until they were brought over from Africa, less than two thousand years ago. They throve in Arabia, however, and when, centuries later, the Saracens set out, from Mecca, on their career of conquest, they had plenty of swift, strong horses, and were able to sweep everything before them.

The Arabians tried to keep their beautiful horses to themselves, but in the seventeenth and eighteenth centuries, a few were brought to England, and it is from these that the beautiful English thoroughbreds and hunters have come. Our thoroughbreds were originally descended from the English thoroughbred, but lately some Arab horses have been brought to the country direct from Arabia.

And now we must go back a little way to find out the origin of the powerful drayhorse. We owe the drayhorse to the agency of man, and originally he was not meant to be a drayhorse. In the days

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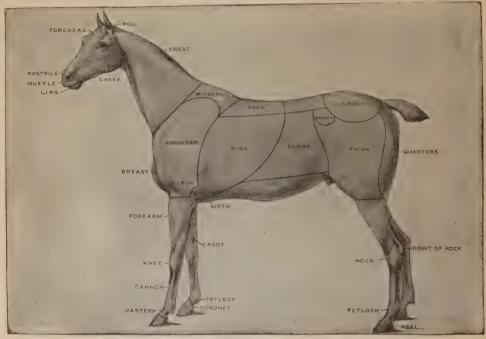
# OUT FOR A WALK WHEN THE WIND BLOWS



"AN APRIL DAY"—BY LUCY KEMP-WELCH

of chivalry, when knights rode to battle or in a tourney, covered from head to foot in armor, it was no small steed that could carry them. So they began to breed more and more powerful horses, that could carry mail-clad riders and their armor as well. In time of peace, or on a journey, the knights rode on small horses, called palfreys; but when the hour of battle came, they mounted their great war horses. Charging at a gallop, they met together with a mighty

fine horses of which they were expert riders, and troops of beautiful wild horses roamed and galloped over the plains? They came by sea, and the Spaniards brought them. The knights and men at arms would not think of fighting on foot. The Spaniards knew they had much fighting before them, and they actually brought their horses over in their uncomfortable, inconvenient ships. Some of these horses escaped on both continents. They multiplied rapidly, and the



THE DIFFERENT PARTS OF A HORSE AND THEIR NAMES

clash of lance on armor, and many a knight and horse went rolling on the field never to rise again.

When the wars were over, or when they were too old for battle, these heavy horses were used to draw the plough. When carriages first came into use they were very heavy, clumsy affairs, for which strong, heavy horses were needed. As better roads were made, heavy drays and wagons came into use, and magnificent Clydesdales, Percherons and other powerful horses were used to draw them.

# How the horse came back to america

Now some reader asks, if all the American horses died out, how was it that, when the West was settled, the pioneers found that the Indians of the West had troops of Indian ponies and mustangs that the pioneers found were their descendants.

From the names of the various kinds of horses we can tell pretty well where the different types have been developed. The Clydesdales, of course, came from Scotland, the Suffolk Punch from England, the Percherons from France. Belgium is famous for heavy horses. Ireland has long been noted for fine hunters, and England for race horses. Apart from the descendants of the wild horses the horse that is most distinctively American is the trotter, a light horse that trots very rapidly. It is usually harnessed to a sulky or a light wagon, and covers the ground with amazing speed.

THE NEXT NATURE STORY IS ON PAGE 6241

# THE MORNING AFTER THE BATTLE



"THE SOLITARY HORSE AND ITS FALLEN MASTER"-BY LUCY KEMP-WELCH



A FAMOUS PICTURE BY LANDSEER, ENGLAND'S MOST FAMOUS ANIMAL PAINTER
These pathetic figures of the war-horse—the innocent sufferer in man's quarrels—are by the greatest English animal painter of the past and the greatest English horse painter of to-day.

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ 6069 ♦ ♦ ♦ ♦ ♦

# WHERE THE MISSISSIPPI IS CHAINED AND SET TO WORK



At Keokuk, Iowa, the course of the Mississippi, now grown to be a large stream, is checked by one of the great dams of the world, though not one of the highest. From the Illinois shore in the background the concrete dam stretches over four-fifths of a mile to the power-house in the centre, and then turns down stream toward the locks you see to the right, through which vessels may pass. The plant can deliver 120,000 horsepower, and it will be possible to increase this amount considerably. Photograph by Anschutz,

# The Book of THE UNITED STATES

## WHAT THIS STORY TELLS US

THIS story tells how the great Mississippi River, the longest river in the world, is born in a little lake in the hills of Minnesota, and flowing down through the heart of the American continent some 2,500 miles, empties at last into the Gulf of Mexico in the south. Many large towns and cities are built upon its banks, chief of which are St. Paul, Minneapolis, St. Louis, Cairo, Memphis, Helena, Vicksburg, Baton Rouge and New Orleans. The river flows through the richest bottom land in the United States, extending as it does over thousands of miles, where corn and wheat and cotton and sugar-cane and many other important crops are grown. The Mississippi River was first discovered by De Soto, and later explored by Joliet, Marquette, and La Salle, and was then in turn under the control of the Spanish and the French. The complete control of the river came to the United States with the Louisiana Purchase in 1803.

# THE MISSISSIPPI

River has been called the "main artery" of the United States. Like an artery in a man's body it pulses through the very heart of the American continent, receiving its water supply from the many tributaries that run like giant veins into every part of our broad land. From the source of its chief tributary, the Missouri, to its mouth is 4,200 miles, making this great stream the longest river in the world.

CONTINUED FROM 5969

A a division of the United States. Like an artery in go on the second ing of the continuous into every part of our broad land. From the source of its chief tributary, the Missouri, to its mouth is 4,200 miles, making this great stream a very much minneapolism.

But if you will take your atlas you will see the real source of the Mississippi River proper is not with the Missouri in the Rocky Mountains, but in the hill country of Minnesota near a little group of lakes. For a long time Lake Itasca was considered to be the source. There are many lakes in the neighborhood, all connecting, though the reeds and the grass sometimes hide the little streams which join them together. Men who have surveyed the whole park now think that Little Elk Lake, seven miles beyond Lake Itasca, is the real source. The water passes through Lake Itasca. It is a pretty little lake encircled with green forests and often the tremulous laughter of the loon drifts over its quiet waters. In certain spots the water is broken by the lush, green grass of the rice that pushes it way up from the rich mud bottom. The stream that

leaves the lake is no more than a creek, and is about twenty feet wide and two feet deep, and seems not an unworthy begining of the mighty river it is to become.

As the river pushes on its way it becomes broader and more tranquil, but when it arrives at St. Paul and Minneapolis, the great manufacturing cities of the northwest, it is still a very moderate sized stream. At Minneapolis the river takes its first foaming leap over the falls of St. Anthony and for a little way the waters become a thunderous, roaring, impressive torrent.

Between the sturdy bulwarks of the Minnesota and Wisconsin bluffs the river makes its way. It is a lovable stream here, clear and swift and cool, unmuddied by the tearing of the banks on the broader river below. Below, the bluffs are wider apart, and the river swings first against one and then against the other. Between the river and the bluffs the land is covered with trees, principally natural oak woods, poplars, beeches, elms, maples, and willows, with farmhouses hidden here and there among the trees. These houses, on the whole, look prosperous.

THE RIVER IS HARNESSED AND MADE TO WORK

In Iowa the beautiful farming country rolls away on either side. At

Coyright, 1912, 1918, by The Grolier Society.

Keokuk a wonderful dam to supply power has been constructed. This is one of the largest dams in the world, though not one of the highest. It furnishes much water-power. At Hannibal, Missouri, beside the growing river, we come to the country of Mark Twain. Here, great rugged bluffs rise along the water edge, and beyond the green, dotted pastures roll away to the hill country inland, where there are farmhouses, and churches and patches of forest trees. "The house the humorist lived in still stands and is much the same as it always was-a stumpy, two-story, clap-boarded dwelling." You can find also the "hill where Tom Sawyer and Huckleberry Finn used to dig for treasure with much enthusiasm, expecting to find a brass pot with a hundred dollars in it or a rotten chest full of diamonds."

# WHERE THE MISSISSIPPI AND THE MISSOURI JOIN

About twenty miles above St. Louis, the Great River receives the water of the Missouri, itself an immense river, and larger than the Mississippi River to the point where they join on their way to the Gulf of Mexico. Soon we see no more of the high bluffs for a time, but the river runs through the flat lands.

From the city of Cairo, Illinois, to the Gulf, the river is generally higher than the land which lies away from the stream. It has built a bed and banks for itself out of the vast quantities of mud, sand and silt it has brought down from above.

# THE TREACHEROUS CURRENT OF THE RIVER

From here on, the current of the Mississippi is a thing to be reckoned with. "To the landowners of the river valley the waters seem a very demon of destruction, eating away the banks and flooding the low-lying farmlands, sweeping all before its swift, silent current. In the flood season, landholders on the river never know but they may awake one morning to find their fair acres a swirl of thick brown waters. One traveler through the Mississippi valley says that a hotel proprietor told him there was a 'heap of pretty country under water along the river' and one day he made a trip to an outlying village to see how the people fared in the submerged districts. They took the flood philosophically enough. He found they were in no danger, simply inconvenienced. Some of the land and 

houses had not yet been touched, but the majority of the dwellings were quite Venetian and he hired a negro to row him about among them."

### THE DREADED FLOODS AND THE LEVEES TO HOLD THEM BACK

To prevent these devastating floods the people have built up levees all along the banks, great earth walls, to keep the giant river back within its natural bounds. Along these levees, roadways are built in some places and back of them pleasant homes, neat and cosy and clean, with vines and shrubbery and shade trees growing about them. Sometimes the river rises above them, or one of them breaks, and then the whole face of the earth is covered with water.

To one class of the Mississippi people, however, the floods hold no terror,the boat-dwellers; for them the river is a great everchanging highway, a bountiful fairy dream, full of change and fascination. From the logs afloat upon its surface they gather the wherewithal to build their homes. All the way from St. Paul to New Orleans, thousands of the water gypsies can be found, in all sorts of houseboats, varying in size and material according to the means or whims of the owners. Some of them are no larger than an ordinary skiff, with hoopediron roofs covered with canvas, under which the people crawl for the night, while others are large, comfortable, and attractive. Sometimes they can be seen in flotillas of a score or more; at other times only two or three can be seen.

## WHERE THE OHIO JOINS THE RIVER

Cairo stands where the great Ohio River from the east joins the Mississippi, and no end of steamers, scows, rafts, tugs, houseboats, and skiffs float up and down. With such towns as this the river banks are studded. The air is filled with a sort of lazy hum of life and excitement. The Ohio carries down much water, and it too is subject to floods. It brings water down from the western slopes of the Alleghanies, and often raises the level of the Mississippi itself.

Kentucky first, and then Tennessee are on the east bank, and Missouri and Arkansas on the west. In Tennessee wide expanses of corn and cotton fields stretch away from the waters. In some seasons of the year the fields are alive with negro workers, hoeing the corn and cotton or

# TWO VIEWS OF THE MIGHTY MISSISSIPPI



Though the Mississippi is one of the longest rivers in the world, it is not one of the deepest. In many places it is so shallow that a special form of boat has been constructed with the paddle-wheel at the back protected from snags and floating logs and not extending deep into the water. Such a boat can go where the water is very shallow. Notice also the levees which keep the river in bounds, here used as wharves.



The people of the Mississippi Valley are very much interested in the construction of a deeper channel, hoping that the commerce of the region may be increased thereby. In order to interest the national government a great excursion carried President Roosevelt and many other prominent men down the river, just before the end of his term of office. Here we see the procession of the boats. To-day the railroad along the river carries more traffic than the river, which it is planned to increase in the future.

picking the white fluff balls out of their round bolls. In the autumn when the bolls open the cotton lands along the Mississippi look as if they were white with a fall of snow.

As the river flows lower and lower in its course, the volume of its broad waters grows greater and greater. It washes away hundreds of acres of plantation lowland every year, sucking the silt from its sides, and hurling it onward and

downward toward the sea.

Along the lower reaches of this river, the banks become farther and farther apart until to people standing upon one bank the other seems but a hazy line of blue across the swift, turbid waters. In the fall, the broad stream is alive with river schooners piled high with blue molasses barrels and bales of cotton; seen in the hot sun against the clear sky the cotton-piled steamers seem like floating mountains of white snow. In the forecastle of the boats can be seen the throngs of negro workers, the handkerchiefs bound about their heads flaming gaudily against the snowy background of the cotton bales.

As the boats push their way up and down the muddy stream, their great smoke-stacks puffing out clouds of white vapor, they stop now and again at some levee along the shore. Then the air is filled with a clamor of banging barrels and oaths, as the negroes, under the direction of the foreman, load and unload the cargoes. The bodies of the toiling negroes glisten as if they had been oiled. The boats move slowly along from landing to landing, between monotonous naked walls of mud, rising sometimes as high as fifteen feet above the upper decks.

The army engineers are constantly struggling with the river. In some places it is too wide to give a safe passage for steamers, and here they narrow it. They build levees to keep it back, they strengthen banks to keep the river from eating them away. They pull out the trees it has drowned, so that they will not tear holes in the boats as they

go up and down.

The last part of the journey is through a region almost tropical in appearance. The river twists along and from the upper deck of a boat paddling down stream one may see the variegated water-birds in the swamps behind the levees, and tall cypress trees festooned with Spanish moss

waving in the breeze and rising out of a real jungle of undergrowth. It is like another country.

As the river nears New Orleans, houses suggestive of thrift and prosperity spring up along the shore, and pretty white villages nestle among the tall trees. Here and there can be seen white-washed beams and sheds, negro cabins and hen coops, with broad sugar and rice fields rolling away behind them.

# NEW ORLEANS, THE CRESCENT CITY, AND THE RIVER

At last the great river curves around the high-built levees and wharves of New Orleans, the Crescent City. Like New York City, New Orleans is one of the great commercial gateways of our continent. Even the river itself seems dwarfed by the monster steamers that plough its "dun waters." Old, bulky ferry boats, huge river dredges, and fruit vessels from the West Indies, Mexico and South America make their way to and fro; and in and out among them all push the slim, white Mississippi packets, looking like giant swans upon the turbid waters.

"Some classes of goods go at once into the warehouses, trains, or ves-sels, but others are stacked for a longer or shorter time on the wharves. There are vast quantities of great, clumsy cotton bales, rows of oozy molasses barrels, heaps of raw sugar in coarse brown bags, piles of lumber, great, odorous hogsheads of tobacco, and boxes and crates and bales of a thousand shapes and a thousand variations of contents. But cotton is more important than anything else, for New Orleans is the greatest cotton port in the world, and the storing, selling, and handling this product furnishes a livelihood to the majority of the city's three hundred thousand inhabitants."

The city has nearly 400,000 people now. It is not at the end of the river, for the city is many miles from the mouth, or mouths. The river sweeps on, without heeding the great traffic of the Crescent City, and empties its silt-laden waters into the Gulf of Mexico lying placid and deeply blue against the southern sky. The "Great River" builds its mouth out far into the open Gulf, dropping the silt it has carried as it meets the salt water of the sea.

THE NEXT STORY IS ON ANOTHER PAGE. 
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# THE MIGHTY RIVER FLOWS SOUTHWARD



In its upper course the Mississippi runs through a wide valley, which is confined by high bluffs. These are usually at some distance from the river, though in its windings it may come close to them in some places. This is Lake Pepin, seventy-seven miles below St. Paul, and is so called because the river here widens out into a sort of lake twenty-five miles long. The scenery along the stream is varied.



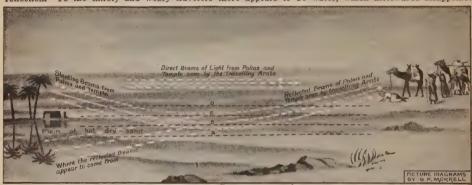
Several hundred miles below the scene shown above evidences of man's presence become common and the mighty river has many cities and towns upon its banks. This is a part of the river front at Quincy, Illinois, a prosperous manufacturing city, as you can see from the many chimneys with their plumes of smoke.

Pictures from Brown Bros.

# SEEING WHAT IS NOT THERE



In this picture we see a mirage in the desert, a scene which does not really exist at all, but is actually a reflection. To the thirsty and weary travelers there appears to be water, which afterwards disappears.



This diagram explains the mirage. The layer of air, A, next to the hot sand, is warm, and different layers of air above, B, C, and D, have different temperatures, and therefore different densities. Now, beams of light passing through gases of different densities are refracted in varying degrees, and, as shown here, the trees, as well as being seen by direct beams, are seen also by the reflected beams as if reflected by water.



This picture shows a mirage at sea, where the conditions are the opposite of those in the desert, the colder and denser air being lowest. The light rays from the ship strike upon layers of different density in the upper air and are refracted downwards. When the densities vary much, images will be seen, some of them inverted.

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# THINGS TO MAKE THINGS TO DO



# HOW TO ARRANGE A PAPER CHASE

THERE are few more healthful or enjoy- CONTINUED FROM 6012 hours at night. It may able ways of spending a half-holiday than in run-ning a paper chase. It is quite easy to get

out a little way into the country from any big city by train, trolley, or motor car, and a good cross-country run cannot but be of

benefit to any boy.

Any number may take part in a paper chase, and a dozen would be a very good average number. Two of these represent hares, and the remainder become hounds. The method of playing is, of course, for the hares to run off across country, taking for preference a route not known to the hounds, and scattering torn shreds of paper as they run. A certain start-about ten or fifteen minutes-is given, and then the hounds go off in pursuit. Their object is to catch the hares—who, of course, keep together—and they follow the route by tracing the paper that has been laid. Obviously it is not wise to run on a windy day, as the paper is blown away and the track lost. In order to confuse the scent the hares often lay a false trail, which, after running some hundreds of yards, simply ceases. When the hounds reach the point where two trails diverge they often lose precious time by deciding upon and following up the wrong one. When it breaks off there is nothing to do but go back and follow the other.

The most suitable clothes in which to run a paper chase are: A sweater, such as is used for football, and flannel trousers.

Canvas or leather shoes, with plain leather

soles, should be worn.

A large quantity of paper torn up beforehand, and packed in large canvas bags, which are slung in satchel fashion round the body. Each hare can take two bags if the run is to be a very long one.

Those who are going on the paper chase should get to bed in good time at night, for nothing spoils the running powers of a be tempting to sit up late. but we shall surely suffer

if we do so. Our muscles will not be what they should be, and our wind will fail us when we come to run over a long course.

For it must be remembered that a paper chase is not like a mile or halfmile race on a specially laid track. The man who can sprint a mile in fine style and record time is often no good for a long cross-country run. Speed is not the only essential. Staying power is most important, as we realize in a very true sense when first wind has gone. But if we are in fit condition, when second wind comes we get into a good stride and go

along well.

The hounds should keep well together, in the early stages of the game, at any rate; it is quite a good plan for them to run in pairs as well as the hares. They can often help one another if they should get into difficulties or in the events of the run. For instance, in following up the two trails to discover which is the true one, a boy to each is enough and will save valuable time. Moreover, two pairs of eyes are better than one, and if the scent is blown away or hidden for a time it is likely to be more quickly picked up when two are seeking it. When they come in sight of the hares, each pair can see which shall have the honor of actually touching the hares first.

Sometimes a paper chase is run over routes that have not been traversed before, and in districts that are unknown to the runners. But as a rule the hares go over the course first, taking note of its opportunities and the lie of the land. It is important for them to know that they can find cover, and not be visible for long distances ahead. Then, too, they will try to make the home run as easy for themselves as possible.

# GAMES TO PLAY IN THE TRAIN

IN the summer months most of us go for a holiday to the seaside or to the woods or mountains, and some of us take long journeys in the train that get very tiring unless we can find something definite to do to pass the hours. We cannot read all the time, and even if we have an inside seat we get tired of looking aimlessly out of the window. Even if there is a party of us, conversation flags after a time, and we long for our journey's end. And yet we need not get tired in the train for lack of something definite to do, for there are all kinds of games that can be played when we are tired of reading or of looking out of the window, and these will prove very interesting to the traveler as he speeds along mile after mile through the country.

### THE LOOK-OUT GAME

AN excellent game for boys and girls, and one that develops our powers of observation, is to look out for objects in the fields and roads as we pass by in the train. Marks may be awarded for each object seen and named, and different values may be given to different objects. Thus, to see a field with cows in it might be worth five marks, and a field with pigs ten marks. A church might be equal to three marks, and so on. If one of the competitors guesses that some distant object is a cow, and upon a nearer view it proves to be a sheep, five marks should be deducted from his score.

Marks should be awarded only to the competitor who first sees any particular object; that is, two competitors cannot each receive marks for the same church, or cows, or reaping machine, or haystacks, unless, of course, they should both call out the names at the same moment, when the marks would be divided

equally between them.

The number of marks for each of the familiar objects of the countryside-cows, sheep, pigs, horses, ploughmen, reaping machines, churches, villages, ponds, rivers, streams, windmills, rooks, dogs, open gates, closed gates, farms, and so on-must be decided before we begin the game, and this provides plenty of occupation while we are passing out of town on the way to the country. In allotting marks to different objects, we should give the largest number to objects least likely to be seen, and the most familiar objects—such as churches, fields with cows, and so on—should receive the fewest marks. If the players sit at opposite sides of the car, and look out at the country on opposite sides of the train, the fun is more exciting than if all are looking out at one side; but we must take care not to annoy other passengers.

### THE HOLIDAY A B C

A GOOD game for the train, and one that is quite appropriate to holiday-makers, is what may be called the Holiday A B C. Having decided who shall begin, a player gives quickly the name of some holiday place that begins with A. Then the next player asks: "What shall you do there?" And the first

player must give an appropriate answer, every word in which begins with A. Then the second player gives the name of a place beginning with B, and the third player asks: "What shall you do there?" to which number two must answer in a sentence of words beginning with B; and so on. Thirty seconds only are allowed for an answer, and those who take longer are given one mark for each second that they take over the thirty. At the end of the game the player with the fewest marks wins. Of course, after getting to the end of the alphabet, we can begin again, and give fresh places, if we are not tired of the game. The letters X and Z should be left out, as they are too difficult. Here are one or two specimen answers: I am going to the Adirondacks. What shall you do there? Attempt almost anything. I am going to Bar Harbor. What shall you do there? Breathe briny breezes. I am going to Coney Island. What shall you do there? Catch crawling crabs.

### A STATION GAME

ANOTHER good game which exercises the powers of observation, and at the same time provides plenty of excitement and fun, can be played after we leave any station which is a stopping-place. While the train is standing in the station all the players look about, and take as much notice of things as possible. Then, when the train has left the station, and five minutes have elapsed, we take it in turns to name any object that we saw at the station. Of course at first this is very easy, and we can go round and round again, each player naming one object which no other player has mentioned. But as the game goes on, it becomes harder and harder to think of things that were at the station, but have not already been mentioned by other players. The one who is last able to mention an object that no one else has thought of wins the game.

### A LONELY TRAVELER'S PASTIME

OF course, if we are traveling quite alone we cannot play any of these games, but we need not find a railway journey hang heavy on our hands. In such a case we should see to it before we start that we provide ourselves with a map of the route. Really good maps, showing all the interesting points, buildings, roads, and so on, on a very large scale, can be purchased for a few cents, and with one of these we can follow our route very closely.

If we have not been able to secure a detailed map of the journey, we can always get a railway time-table, and follow the route in the map of the line which is given in the timetable. In this case we shall find it very interesting if we fill in as many details as possible ourselves as we go along, putting a cross wherever a church occurs, a feathery mark for hills and rising ground, squares for farmhouses, circles for ponds and lakes and other distinguishing marks for objects of interest.

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# HOW TO MAKE A BAG FROM A PAIR OF GLOVES

1. HOW TO CUT THE GLOVE

IT is easy to make a dainty leather bag out of old kid gloves. The gloves must be elbow length, or longer, because it is the "tops" that we are going

"tops" that we are going to use, because although the fingers wear into holes, the tops always remain quite good. We shall have to ask one of our grown-up friends for a pair she has finished with, and, if she has several pairs, we will have the derivert color. Tan brown pays

with, and, it she has several pairs, we will choose the darkest color. Tan, brown, navy blue, or black are good shades, because they do not soil; and as we wish to use our little bag as a purse, this is a con-

do not soll; and as we wish to use our little bag as a purse, this is a consideration. Of course, if white gloves are available, we can make a small bag for quite a different purpose—an evening bag, just big enough for a handkerchief and a few little odd things when we go to the theatre or to a party. We notice that there is a seam down one side of the glovetop. With a sharp pair of scissors we cut down that seam—as from A to B in picture I—then we cut right

across the glove nearer the wrist—as from B to c—and open the piece out flat. This will make one side of our bag, and of course we

get the other side in the same way from the other glove. We must be very careful to cut our two gloves quite even. We lay these pieces together back to back, and cut them straight, and we shall get two pieces each seven inches square. If they are big gloves we shall get a larger piece. When we have the outside ready we must think about a lining for our bag. A little strip of satin, silk, or wide, soft ribbon will do admirably. It should be of a con-

trasting color, or a good match. For instance, our tan kid bag would look well lined with green or brown; if navy, lined with violet or mauve;

or brown; if navy, lined with violet or mauve; if black, lined with white or scarlet. For the white bag it will be best to select a delicately colored lining—pale pink, palest blue, or white. These are only suggestions. We can, of course, choose for ourselves the color which pleases us best. We may wish it to match a friend's dress or hat. If there is a "piece-box" in the house there will certainly

be several pieces to choose 4. SEWING of from. We also need a yard of silk cord, the color of our lining, for the handle and the

"draw-up."
Having cut our lining a little larger than the kid, we must first run round three sides of it with the stuff laid face to face—see picture 2.
The fourth side we leave open. Now take up

the kid, put the pieces back to back, and sew round three sides—these stitches are to show. If we look well at picture 3, which shows the

finished bag, we shall see how the ornamental stitches are managed. The kid has been turned in once, and a stout thread of embroidery cotton or coarse silk of the same shade as the lining has

been used to sew the two edges together, over and over, all round the three sides. Care must be taken to keep the stitches as even as possible, and fairly big. When the

possible, and fairly big. When the three sides are done we slip the lining inside, just as it is, and turn in the edges of the kid and the satin at the top, or opening, of the bag, so that they fit together nicely, and then sew them over and over in the same way as the sides were sewn—see picture 4. Next we make a slot for the cord to run in, by a double row of stitching across the top, leaving about 1½ inches for the frill. The slot should be

2. THE LINING

for the frill. The slot should be
from B half an inch wide, and must be neatly backis will stitched top and bottom. We have now
free we only to work a couple of eyelet-holes at each

side, insert the cord with a bodkin, and the bag is finished. If our bodkin-eye will not take the cord, which is generally a trifle too stout to go through, we should sew the cord to the bodkin-eye with a piece of thread. The bag will open and shut more easily if we run the cord round twice instead of once. Then we are able just to give each handle a gentle pull, and the mouth of the bag closes

a gentle pull, and the mouth of the bag closes automatically.

We need not, of course, keep to the square shape for our bag, for by wasting a little strip of kid we can get an oblong shape, which can be made just as useful. For instance, a bag

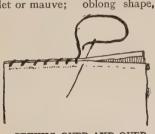
which can be made just as useful. For instance, a bag made of black kid could be lined through with a piece of velvet and made just large enough to hold a pair of spectacles. This size is best made to fasten with a little pointed flap. On the bag we sew a glove-button, and to the point of our flap we make a loop of several threads

make a loop of several threads of silk.

A leather case made in the shape of an ordinary envelope is useful to anyone who goes fishing. If lined through with a strip of oiled silk, it makes an excellent holder for flies and fine wire. This case should be fastened at the point of the envelope flap, in the same way as the bag for a pair of spectacles mentioned above.



3. THE FINISHED BAG



4. SEWING OVER AND OVER

# LITTLE GARDENS FOR INVALIDS

# HOW TO STUDY NATURE IN A BEDROOM

THERE came to my desk the other day an interesting letter from "A Shut-in of Many Years Standing," a touching letter, which set me thinking of the hundreds of boys and girls and grown-up readers of this book who spend their lives indoors, lying cheerfully and patiently all their days in bed or on a sofa, and complaining not half so much as some of those who live in health and strength. Here is a letter from an author, Miss Phœbe Allen, who has written many little story-books for children. She herself is an invalid, and knows what pleasure an indoor garden gives, and has written you a letter to tell you what you may grow in your own garden in the house. She writes:

"Do you think there are any invalids among your readers, boys and girls who can never go out of doors? And do you think

you could find room for a letter from a fellow shut-in, telling them how they may work at a garden in their own room? And how, besides raising ordinary plants, they may cultivate all manner of delightful rarities, such as orange and lemon trees, date palms and pepper plants, oak, laburnum, and walnut trees? And how they may make charming hanging gardens where, half-way between ceiling and floor, hyacinths and snowdrops will peep out of a globe of mossy verdure, and how even miniature lakes can be introduced into their pleasure-grounds and filled with water plants?"

Miss Allen has written us the story of her own indoor garden—though she has called it Roy's garden instead. Perhaps there are some Roys who will have gardens like Miss Allen's when they read about its quaint devices.

# THE STORY OF ROY AND HIS BEDROOM GARDEN

EARLY and late, Roy worked in his little plot of ground, so that when, owing to the results of a bad fall, he was condemned to lie in bed for many months, we all pitied him for the loss of his garden. But, instead of pitying himself, Roy set to work, with Dora as his assistant, to turn his room into a garden. As it was late autumn, Roy started with bulbs. Some were planted in bowls of cocoanut fibre; crocuses, gold and purple, went into shallow saucers; some pet hyacinths had separate glasses; while snowdrops and the glory of the snow had each their respective boxes. Roy's joy, however, was the two green leafy globes which hung in his window; they were real hanging gardens! Outside, they presented a mass of curling foliage, with golden daffodils gleaming in the centre of one, and hyacinths of every hue peeped over the brim of the other.

they presented a mass of curing lonage, with golden daffodils gleaming in the centre of one, and hyacinths of every hue peeped over the brim of the other.

"And they were only jolly big turnips to start with!" laughed Roy, going on to explain how, after slicing off the root end, he had hollowed out two-thirds of each turnip—leaving their walls about one-inch thick—and planted bulbs inside. "Then I hung the turnips up topsy-turvy, with their root ends turned toward the sky and their leaves pointing downward. But, just because Nature meant them to grow upwards, the leaves adapted themselves to their altered condition, and, turning toward the light, grew up all

round the outside of the turnip, making it a regular green nest."

Then Roy showed an oak in its earliest babyhood, growing from an acorn slung on a stick across a wide-necked bottle filled with water; an infant horse-chestnut, sprouting bravely under the same treatment; four dark-leaved walnut seedlings, standing some ten inches high in the little tub they shared together—they wanted all the sun they could get; a flourishing young almond, also a seedling; and, lastly, a Cornelian cherry and a laurel, both raised from cuttings.

"And these are my foreigners," he continued, indicating a box in which several small pots were sunk in sand, with two bits of glass laid over the top, but fitting loosely in order to admit air.

Here were orange and lemon seedlings—pip-lings, Roy called them—date-palms, one over a foot high, raised from stones, a crowd of tiny pepper-trees, scarlet chili, elephant's trunk, and golden dawn.

"And now look at this!" said Roy gaily.
With a cube of tarf one and a quarter inches square, and sprinkled with spores of the oak, parsley and beech ferns, and set in a flat saucer with a little water and covered over with a bell-glass, Roy had created a most successful fernery.

most successful fernery.

But I must hurry on, without pausing to dwell on the cyclamen and cacti, the fuchsias,



geraniums, and other usual window plants, which were all flourishing under Roy's care, for I want to speak of the delightful minia-ture garden laid out in a box. This was like a deep butler's tray placed on a table, measuring about thirty inches square, lined with zinc, with an inner perforated zinc trav to fit at the top, this being well concealed by a thick upper layer of soil.

It had a real grass plot and gravel walk, a thicket of fairy roses—red and white, raised from seed—plots of pansies, double daisies, saxifrage and lobelia, miniature sunflowers, liliput nasturtiums, golden musk, dwarf mig-nonette, and clouds of sky-blue nemophila. Alpine fairies were there, too; while ivy geraniums hung over the walls of the garden. "And now," said Roy, "look under that

brown paper on the corner table over there; that's a great surprise for the little ones."

I raised the paper, and burst out laughing. Such a comical group met my eyes. There was a Jack-in-the-green sprouting mustard from every limb; a huge Teddy bear, with curlyleaved cress growing over him from the tip of his ears to his feet; while a very staid and solemn-looking mandarin, clad in a fine flowing robe of the new Chinese mustard, completed

this trio of Greenlanders.

"It was nurse's idea," said Roy. "She took the baby's old toys and sewed them up in flannel, and then we damped them well and sprinkled them all over with the seeds. But we had to swing them on a line, you know, so that the mustard and cress would come up evenly all over, and now they're just perfect. I'm going to do a lot now for the children's hospitals. I shall do a whole Noah's ark, I think, and ships, and cannons, and all sorts of things," he added ambitiously.

## A NEW BALL GAME FOR THE OPEN AIR

THE difficulty of playing ball games in small gardens is that the ball so often goes over the wall and is lost, or, at any rate, interrupts the game. If we are playing in the city we have often to depend on the kindness of passers-by to return us the ball quickly before it is stolen. There is an interesting ball game in which the ball is fastened up so that it cannot go over the wall. We fix in the ground a long

pole, and from the top of this we hang a strong, flexible cord or string. To the end of the cord, which, when it is hanging down loosely, should reach to within about two feet of the ground, we fasten any kind of bouncing ball. Two players stand at opposite sides of the pole, and, with tennis rackets or wooden pingpong bats, beat the ball from one side to the other.

The game of post-ball is to beat the ball so that the string will wind round the pole until it is all wound up, and the one who does

this first wins the game. One player tries to wind up the ball round to the right, and the other to the left. Apart from the skill that is required, there is a great deal of fun to be had in striking the ball backwards and forwards.

The skill comes in when we beat the ball in such a way that we make our opponent

miss it, while at the same time we are winding the string up for ourselves. On the other hand, we must try never to miss the ball ourselves; and when our opponent beats it round, we must drive it back, and thus prevent him winding the string round the pole. The game is most exciting, and its advantage is that it can be played in any garden. An ordinary tall clothes-line post will be a very

good place to fix the cord, if the post is standing by itself sufficiently far away from trees and bushes and walls to give free play to the ball.

In order to fasten the string to the ball, it is best to make or buy a piece of strong string netting in which to place the ball, and the cord can then be fastened to this net.

Another way of playing is to have any number of players, who stand round the post at equal intervals and strike at the ball. The

game is, as before, to wind the string round the post, and all the players try to do this. Each strikes in turn, and if any hits out with the bat and misses the ball, he has to stand out of the game, until only one is left, and he is the winner. As often as the string is wound right up, it is unwound by beating the ball in the opposite direction,

and the game is continued.



THE GAME OF POST-BALL

## HOW TO KNOW IF A RULER IS STRAIGHT

T is quite easy by a simple experiment to discover if a ruler has a perfectly straight edge. We place the ruler on a sheet of paper lying on a smooth surface, and, holding the ruler down firmly, rule a line against the edge with a well-sharpened pencil. Then we turn the paper right round, and, placing the edge of the ruler close against the line already ruled we hold the ruler down firmly once more, and 

draw a second line along the edge of the ruler near the first line. If the edge of the ruler is not straight, the slightest inequalities will be seen clearly by looking closely at the two lines. There will be places where they are not the same distance apart, and, of course, the nearer together the two lines have been drawn the easier will it be to detect any irregularity. The ruler must not move during the ruling.

# A KALEIDOSCOPE THAT A BOY CAN MAKE

THE kaleidoscope is one of the most interesting of scientific toys, and there are few boys or girls who have not had one The name is made up of three sometime. Greek words which mean then "I see a beautiful image," and by means of the instrument

an endless number of patterns, all beautiful in form, and all different from one another, can be made. As a matter of fact, so far from being a mere toy, the kaleidoscope is sometimes used by artists and pattern-makers in order to obtain new designs and patterns for carpets, wall papers, and other fabrics.

The usual form of kaleidoscope, which was invented by Sir David Brewster in 1817, is a tube in which two mirrors are arranged at an angle to one another; and between these How to m mirrors fragments of colored glass or other

colored objects are free to move about as the tube is turned round. Whatever position these colored pieces take up, they are reflected in the mirrors, and the multiplication of the

pieces by reflection forms a regular design which, however irregular the colored fragments themselves may be, becomes very artistic and pleasing to the eye. The slightest shaking of the instrument produces new figures.

But the tube, with its arrangement of mirrors inside, is not essential, and there is a much simpler form of the kaleidoscope which every boy or girl can make at practically no cost, and

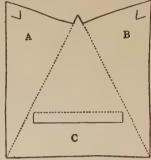
with very little trouble.

First of all we take a piece of white cardboard, fairly tough in substance, 4 inches by

44 inches, and at one end of its greatest length we cut it to the shape shown at the top of picture I. Then at A and B we cut small V-shaped nicks as marked in the diagram, and an inch from the bottom, at c, we cut a line 2½ inches long, with a little line measuring oneeighth of an inch at each end, at right angles to the longer line.

Then, on the opposite side of the card, with a penknife, we lightly score the cardboard along the directions marked by dotted lines in picture 1. This is done so that the card may be easily bent along these lines. The

diagram shows exactly how we cut and score the card. The dotted lines are where we score —that is, cut only slightly into the card—and the black lines show where we cut right through. The card forms the body of the kaleidoscope.



How to make the card.

rub and rub these until they are burnished

in the position shown in picture I, with the scored lines on the under side.

Then we push up the little ledge, c, that we have cut in front, and turn up the two triangular flaps on either side along the scored lines, so that these will form upright sides. Now we take the folded metal mirror,

Now for the mirrors. We do not need looking-glass, but can use tin. We take two

pieces of perfectly smooth and flat tin, 3

inches by 1½ inches, and, with any ordinary

metal polish that may be in the house, we

and shine almost like silverplate and reflect nearly as well

as looking-glass. Now, with a slip of gummed paper, we join

the pieces of tin by hinging together two of their ends so that

they can be opened at any angle, as in picture 2, taking care, of course, that the paper

is stuck on the dull sides of the tin, and not on the sides we

We are now ready to put our

kaleidoscope together, and this

is the way it is done: We first

place the white card on the table

have burnished so brightly.

and, opening it at an angle of about sixty degrees, we place it inside the card, so that the two nicks, A and B, in the cardboard sides come over the metal and hold it in position. The turned-up ledge in the front of the card will prevent the mirror from closing up, if we have measured its position correctly.

We now place some tiny pieces of colored cardboard of various shapes on the white card between the mirrors, and, holding the kaleidoscope as shown in picture 3, we let a good light fall upon the mirrors, when we see in them a beauti-

ful design. As we shake the colored fragments about, the design changes with every movement. No matter how irregular the little pieces of colored card may be, a geometrical design will be formed, but this will be much more artistic and pleasing if the fragments of colored card are themselves cut into some regular shapes, such as circles, rings, triangles, s's, x's, and any others we care to make.

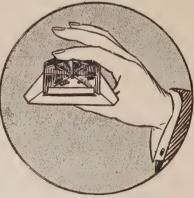
With a little practise we can cut cards to hold the mirrors at various

ope complete.

angles, for according to the angle of the mirrors, so the number of times we see the colored objects reflected varies. Thus, when the angle is 120 we see the colored fragments three times; when the angle is 45 we see them seven



How the mirrors are hinged.



The kaleidoscope complete.

T used to be thought that only a man who had served a long apprenticeship could do land surveying; but this is far from being the case, and any intelligent boy who cares to take a little trouble can find a great deal of interest and pleasure in measuring distances and heights, and even mapping out a stretch of

country. What might seem one of the most difficult things to do-measuring the width of a wide river—is really quite simple, and will provide a very interesting occupation for boy scouts and others who like to get profit for the mind as well as pleasure for the body from a walk in the country.

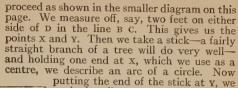
The science of land surveying is a very ancient and honorable one, for it is supposed that it originated in Egypt, where it was necessary accur-

aries washed away by the flooding of the Nile: To measure the width of a stream we first of all choose a place where both banks are at about the same level and the stream is fairly straight. Then we select some tree or bush or stone, or other fixed object on the opposite bank, quite

close to the edge, such as A in the picture. On our own side of the stream we mark off straight line right angles to the stream as at BC, in continuation of a straight line from A to B. This is done by placing a stick in the ground at B immediately opposite to A, and in moving back to c, taking care to keep the always stick exactly in front of the

bush at A. We can mark the straight line B C by laying a string on the ground, if we have one, or by putting stones at short intervals.

Now from some point, such as D, not far from B, we mark a line D E at right angles to B C. To get the line exactly at right angles we



again describe an arc, and the point z is where the arcs cut one another. At this point z we place a stick in the ground, and another stick at D, and then moving along so that in our vision we always keep one stick exactly in front of the other, we are able to mark the line DE as we did the line B C. D E should be measured to about 30 feet, and we should mark the point F at two-thirds the distance,

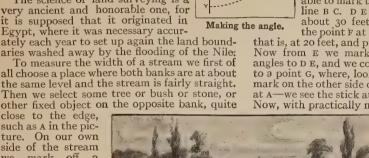
that is, at 20 feet, and put a stick in the ground. Now from E we mark another line at right angles to DE, and we continue this till we come to a point G, where, looking across to our landmark on the other side of the stream—the bush at A-we see the stick at F exactly in front of it. Now, with practically no trouble at all, we can

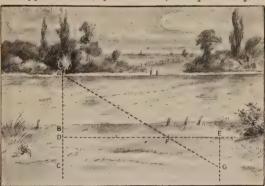
find the width of the river, for we have only to work a simple proportion problem. As the line E F is to F D. so is E G to D A. DF is 20 feet, EF is 10 feet, and we will suppose that E G is 8 feet. Then our problem stands like this: As IO: 20:: 8: D A= 16 feet. From this figure we must deduct the distance B D, which we find, bymeasuring, is, say,

the width of a river.

3 feet, and we have

13 feet as the width of the stream. This
may not seem very interesting, but if the
boys who read this page will try it for themselves they will find it a fascinating occupation. For practise we do not need a river; we can measure the width of a road or field.





An easy way to measure the width of a river.

#### SHEET OF NOTEPAPER YOUR PORTRAIT ON A

IF you want to have a joke with a friend, here is a very good way of doing it.

The drawing on the notepaper.

Take half a sheet of notepaper, fold it in two, so that the fold comes at the bottom. In the middle of this square draw a comic portrait inside a ruled space, measuring about I inch wide and 1½ inches deep. Cut through the base and side rules, bend back the portrait, and on the paper showing through the opening draw a tripod camera. cut through the side lines,

and the top line which coincide with the upper and side rules of the portrait, and pull the lower flap through so that it covers the portrait. On the left side of the front half

of the folded paper draw a photographer in the act of pulling a string which is carried across the cut to the lens of the camera, and the trick is ready, as shown in the picture. Face your friend, holding the folded paper in front of him with your left



The trick ready.

hand gripping the front half and the right hand the back half. By a slight jerk backwards with the right hand the comic face will be made to appear in the place of the camera.

### HINTS AND TRICKS FOR ODD MOMENTS

### AN EASILY-MADE APPLE-PICKER

IT is quite easy to make an ingenious applepicker that will save us a lot of time and
trouble when we are gathering the fruit in
the orchard or garden. It spoils the apples
to knock or shake them down, and it takes a
long time to move our ladder about and
climb all over the branches to reach every
apple. But by means of the simple arrange-



ment shown in the picture we can gather the apples carefully and well. We get a forked stick, and across the fork we tie an old knifeblade, after

sharpening the edge. Then we cut two small grooves in the stick, eight inches apart, as seen in the picture, at A and B. A long piece of fairly stout wire is then twisted round a tin can, and the end is wound round the stick in the grooves. We must be careful to fix our can so that it will catch the apples as the knife cuts them, or all our trouble will be lost. The apple-picker is then ready. If we want it very long, we can make the stick or pole as long as we wish by splicing it in the manner shown at c, binding round the joint with wire.

#### THE RABBITS' EARS

IF we were asked to draw three rabbits, and to give them only three ears between them, yet to make them appear as though they really had two ears each, no matter how clever

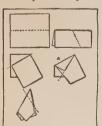
we might be as artists, we should think that an impossible and ridiculous task had been set us. Yet such is not really the case, for, as can be seen by this picture, the drawing can actually be made and the conditions fulfilled. By a skilful arrange-



By a skilful arrangement of the three rabbits and the three ears, as shown in the picture, the little animals appear to be quite properly equipped with the right number of ears, although they have only three between them.

#### A STAR MADE WITH ONE CUT

IT would at first thought seem to be quite an impossibility to cut a five-pointed star out of



as square of paper with one single snip of the scissors, and yet it is quite easy to do so. Everything, of course, depends upon the method of folding the paper before cutting, but if the square of paper be folded exactly as shown in the accompanying diagrams, and then the folded paper be cut with one snip in the direction of

paper be cut with one snip in the direction of the dotted line in the fifth diagram, we shall

have a star. In folding the paper at the stage shown in the fourth diagram, so as to get that shown in the fifth, we must fold from the point A across to the right. In all cases fold across the dotted line—that is, when you have the paper opened out flat, as in diagram I, fold across the dotted line to make diagram 2; then, to get the shape shown in diagram 3, fold across the dotted line in diagram 2, and so on to position 5.

#### THE MAGIC WRITING

WE can have some fun with our friends by causing what seems to be magic writing to appear upon the surface of an ordinary

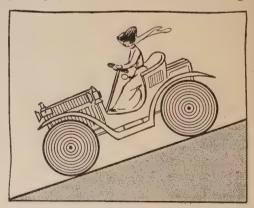
looking-glass when it is breathed upon. Unknown to our friends, we write upon the glass with a piece of French chalk, and then we wipe out the writing with a soft cloth, such as a handkerchief. The writing cannot now be seen, but if we breathe upon the glass it will instantly become visible, and, to



those not in the secret, will seem very mysterious and weird indeed.

### THE WHEELS THAT TURN

HERE is a picture of a motor-car going along a hilly country road. There are no police traps, and the motor is going at a great speed. We can see that it is moving



by the way the wheels are going round. We may not think at first that the motor is really going at all, but if we put this book down flat on the table and look steadily at the centre of either wheel, with our eyes about a foot from the book, and then, without raising the book from the table, give it a quick circular motion, the wheels will appear to be going round rapidly. In another place in our book you will find another example of how our eyes deceive us, in spite of the old saying that "seeing is believing."

CONTINUED ON PAGE 6161.

# The Book of

### A PROPHECY OF THE FUTURE

N this poem, written nearly fifty years ago, John Townsend Trowbridge gives a very amusing account of the first American flying-machine. In the days when he wrote it, the hero was ahead of his time in being of the opinion "that the air is also man's dominion," but there are many to-day reaping the results of early work like his. Darius scorned to let the swallow and blackbird and wren know more than he knew. He believed that wings were just as necessary to him in earning his living as they were to the bee, and so he set to work and made some-with what result you will see!

### DARIUS GREEN AND HIS FLYING-MACHINE

000000

IF ever there lived a Yankee lad.

Wise or otherwise, good or bad.

Who, seeing the birds fly, didn't jump

With flapping arms from stake or stump,

Or, spreading the tail Of his coat for a sail,

Take a soaring leap from post or rail,
And wonder why
He couldn't fly,

And flap and flutter and wish and try,-If ever you knew a country dunce Who didn't try that as often as once,

All I can say is, that's a sign He never would do for a hero of mine.

An aspiring genius was D. Green: The son of a farmer,—age fourteen; His body was long and lank and lean,-Just right for flying, as will be seen; He had two eyes, each bright as a bean, And a freckled nose that grew between, A little awry,—for I must mention That he had riveted his attention Upon his wonderful invention,

Twisting his tongue as he twisted the strings,

Working his face as he worked the wings, And with every turn of gimlet and screw Turning and screwing his mouth round too.

Till his nose seemed bent

To catch the scent, Around some corner, of new-baked pies, And his wrinkled cheeks and his squinting

Grew puckered into a queer grimace, That made him look very droll in the

And also very wise.

And wise he must have been, to do more Than ever a genius did before, Excepting Dædalus of yore And his son Icarus, who wore

Upon their backs Those wings of wax He had read of in the old almanacs.

Darius was clearly of CONTINUED FROM 5987 the opinion, That the air is also man's

dominion, And that, with paddle or fin or pinion, We soon or late

Shall navigate

The azure as now we sail the sea. The thing looks simple enough to me;

And if you doubt it, Hear how Darius reasoned about it.

> "Birds can fly, An' why can't I? Must we give in, Says he with a grin, "'T the bluebird an' phoebe Are smarter'n we be?

Jest fold our hands an' see the swaller, An' blackbird an' catbird beat us holler? Doos the leetle chatterin', sassy wren, No bigger'n my thumb, know more than

men?

Jest show me that! Er prove 't the bat Hez got more brains than's in my hat, An' I'll back down, an' not till then!"

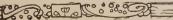
He argued further: "Ner I can't see What's th' use o' wings to a bumble-bee, Fer to git a livin' with, more'n to me;— Ain't my business Important 's his'n is?

"That Icarus Was a silly cuss,-Him an' his daddy Dædalus, They might 'a' knowed wings made o' wax Wouldn't stan' sun-heat an' hard whacks. I'll make mine o' luther, Er suthin' er other.

And he said to himself, as he tinkered and planned:

"But I ain't goin' to show my hand To nummies that never can understand The fust idee that's big an' grand. They'd 'a' laft an' made fun

O' Creation itself afore 'twas done!'



So he kept his secret from all the rest, Safely buttoned within his vest; And in the loft above the shed Himself he locks with thimble and thread And wax and hammer and buckles and

And all such things as geniuses use;-Two bats for patterns, curious fellows! A charcoal-pot and a pair of bellows; An old hoop-skirt or two, as well as Some wire, and several old umbrellas; A carriage-cover, for tail and wings;

A piece of harness; and straps and strings; And a big strong box, In which he locks

These and a hundred other things.

His grinning brothers, Reuben and Burke And Nathan and Jotham and Solomon, lurk Around the corner to see him work,-Sitting cross-leggèd, like a Turk, Drawing the waxed end through with a jerk, And boring the holes with a comical quirk Of his wise old head, and knowing smirk. But vainly they mounted each other's backs, And poked through knot-holes and pried

through cracks; With wood from the pile and straw from the stacks

He plugged the knot-holes and calked the cracks;

And a bucket of water, which one would think

He had brought up into the loft to drink When he chanced to be dry, Stood always nigh, For Darius was sly!

And whenever at work he happened to spy At chink or crevice a blinking eye,

He let a dipper of water fly.

"Take that! an' ef ever ye get a peep, Guess ye'll ketch a weasel asleep!" And he sings as he locks His big strong box:-

#### SONG

"The weasel's head is small an' trim, An' he is leetle an' long an' slim,
An' quick of motion an' nimble of limb,
An' ef yeou'll be
Advised by me, Keep wide awake when ye're ketchin' him!"

So day after day He stitched and tinkered and hammered away, Till at last 'twas done,-

The greatest invention under the sun!
"An' now," says Darius, "hooray fer some fun!"

'Twas the Fourth of July, And the weather was dry. And not a cloud was on all the sky, Save a few light fleeces, which here and there, Half mist, half air,

Like foam on the ocean went floating by: Just as lovely a morning as ever was seen For a nice little trip in a flying-machine.

Thought cunning Darius: "Now I sha'n't go Along 'ith the fellers to see the show. I'll say I've got sich a terrible cough! An' then, when the folks 'ave all gone off, I'll hev full swing

Fer to try the thing
An' practise a leetle on the wing."
"Ain't goin' to see the celebration?"
Says Brother Nate. "No; botheration!
I've got sich a cold—a toothache—I—
My gracious!—feel's though I should fly!"

Said Jotham, "Sho! Guess ye better go." But Darius said, "No! Shouldn't wonder 'f yeou might see me though, 'Long 'bout noon, ef I git red
O' this jumpin', thumpin' pain 'n my head!"
For all the while to himself he said:—

"I tell ye what! I'll fly a few times around the lot, To see how 't seems, then soon 's I've got The hang o' the thing, ez likely 's not,

I'll astonish the nation

An' all creation
By flyin' over the celebration!
Over their heads I'll sail like an eagle;

I'll balance myself on my wings like a sea-

I'll dance on the chimbleys; I'll stan' on the steeple:

I'll flop up to winders an' scare the people! I'll light on the libbe'ty-pole, an' crow; An' I'll say to the gawpin' fools below,

'What world's this 'ere
That I've come near?'
Fer I'll make 'em b'lieve I'm a chap f'm the moon!

An' I'll try a race 'ith their ol' bulloon." He crept from his bed:

And, seeing the others were gone, he said, "I'm a-gittin' over the cold 'n my head." And away he sped,

To open the wonderful box in the shed.

His brothers had walked but a little way When Jotham to Nathan chanced to say, "What on airth is he up to, hey?"
"Don'o',—th' 's suthin' er other to pay,
Er he couldn't 'a' stayed to hum to-day."
Says Burke, "His toothache's all in his eye! He never'd miss a Fo'th-o'-July, Ef he hedn't got some machine to try."

Then Sol, the little one, spoke: "By darn! Le's hurry back an' hide 'n the barn, An' pay him fer tellin' us that yarn!" "Agreed!" Through the orchard they creep back, Along by the fences, behind the stack, And one by one, through a hole in the wall, In under the dusty barn they crawl, Dressed in their Sunday garments all; And a very astonishing sight was that, When each in his cobwebbed coat and hat

Came up through the floor like an ancient rat. And there they hid; And Reuben slid

The fastenings back, and the door undid.

"Keep dark!" said he,

"While I squint an' see what the' is to see."

### >>>>>>> THE BOOK OF POETRY

As knights of old put on their mail,-From head to foot An iron suit, Iron jacket and iron boot, Iron breeches, and on the head No hat, but an iron pot instead, And under the chin the bail, I believe they called the thing a helm;

And the lid they carried they called a shield; And, thus accoutred, they took the field, Sallying forth to overwhelm The dragons and pagans that plagued the

realm:-So this modern knight

Prepared for flight, Put on his wings and strapped them tight; Jointed and jaunty, strong and light; Buckled them fast to shoulder and hip,-Ten feet they measured from tip to tip! Not on his head like those of yore,

But more like the helm of a ship. "Hush!" Reuben said,

"He's up in the shed! He's opened the winder,—I see his head! He stretches it out,

An' pokes it about, Lookin' to see 'f the coast is clear, An' nobody near;-

Guess he don'o' who's hid in here! He's riggin' a spring-board over the sill!
Stop laffin', Solomon! Burke, keep still!
He's climbin' out now—Of all the things!
What's he got on? I van, it's wings!
An' t' other thing? I vum, it's a tail! An' there he sets like a hawk on a rail!

Steppin' careful, he travels the length Of his spring-board, and teeters to try its strength.

Now he stretches his wings, like a monstrous

Peeks over his shoulder, this way an' that, Fer to see 'f the' 's any one passin' by; But the' 's on' a ca'f an' a goslin' nigh.

They turn up at him a wondern' eye,
To see—The dragon! he's goin' to fly!
Away he goes! Jimminy! what a jump!
Flop—flop—an' plump
To the ground with a thump!
Flutt'rin' an' flound'rin', all 'n a lump!"

As a demon is hurled by an angel's spear, Heels over head, to his proper sphere,-Heels over head, and head over heels, Dizzily down the abyss he wheels,— So fell Darius. Upon his crown, In the midst of the barnyard, he came down, In a wonderful whirl of tangled strings, Broken braces and broken springs, Broken tail and broken wings, Shooting-stars, and various things! Away with a bellow fled the calf,
And what was that? Did the gosling laugh?
'Tis a merry roar

From the old barn-door, And he hears the voice of Jotham crying, "Say, D'rius! how de yeou like flyin'?"

Slowly, ruefully, where he lay, Darius just turned and looked that way, As he stanched his sorrowful nose with his cuff.

"Wal, I like flyin' well enough," He said, "but the ain't sich a thunderin' O' fun in 't when ye come to light."

#### MORAL

I just have room for the moral here: And this is the moral,—stick to your sphere. Or if you insist, as you have the right, On spreading your wings for a loftier flight, The moral is,—Take care how you light.

### FOUR DUCKS ON A POND

It may not be "four ducks on a pond," that we remember for years, but very likely we have some little picture of like simple beauty imprinted for ever on our memory. The writer, William Allingham, who died in 1889, possessed to a high degree the art of word painting as these simple lines show.

FOUR ducks on a pond. A grass-bank beyond, A blue sky of spring, White clouds on the wing: What a little thing To remember for years— To remember with tears!

### GIVE US MEN

The following spirited appeal to the nation to furnish true men to further the interests of the country is supposed to have been written by a Bishop of Exeter.

GIVE us men! Men from every rank, Fresh and free and frank: Men of thought and reading, Men of light and leading, Men of loyal breeding, The nation's welfare speeding: Men of faith and not of fiction, Men of lofty aim in action, Give us men-I say again Give us men!

Give us men! Strong and stalwart ones: Men whom highest hope inspires, Men whom purest honor fires, Men who trample self beneath them, Men who make their country wreathe them As her noble sons,

Worthy of their sires: Men who never shame their mothers, Men who never fail their brothers, True however false all others, Give us men-I say again, Give us men!

Give us men! Men who when the tempest gathers Grasp the standard of their fathers In the thickest fight: Men who strike for home and altar. (Let the coward cringe and falter,) God defend the right! True as truth though low and lonely, Tender as the brave are only: Men who tread where saints have trod, Men for country, home and God; Give us men—I say again, Give us such men!

### THE DOUGLAS TRAGEDY

This is an old ballad dating from very early times. It is known in Denmark and in other European countries, and the Scotch have localized it as happening in Black-House on Douglas Burn.

RISE up, rise up, now, Lord Douglas,"

"And put on your armor so bright; Let it never be said, that a daughter of thine Was married to a lord under night.

"Rise up, rise up, my seven bold sons,
And put on your armor so bright,
And take better care of your youngest sister,
For your eldest's awa the last night."

He's mounted her on a milk-white steed, And himself on a dapple gray, With a bugelet horn hung down by his side, And lightly they rode away.

Lord William lookit o'er his left shoulder, To see what he could see, And there he spy'd her seven brethren bold, Come riding over the lea.

"Light down, light down, Lady Marg'ret," he said,

"And hold my steed in your hand, Until that against your seven brothers bold, And your father, I mak' a stand."

She held his steed in her milk-white hand, And never shed one tear; Until that she saw her seven brethren fa',

Until that she saw her seven brethren fa', And her father hard fighting, who loved her so dear.

"O hold your hand, Lord William!" she

"For your strokes they are wond'rous sair; True lovers I can get many a ane, But a father I can never get mair."

O she ta'en out her handkerchief, It was o' the holland sae fine, And aye she dight her father's bloody wounds, That were redder than the wine.

"O chuse, O chuse, Lady Marg'ret," he said,
"O whether will ye gang or bide?"
"I'll gang, I'll gang, Lord William," she said,

"For ye have left me no other guide."

He's lifted her on a milk-white steed And himself on a dapple gray, With a bugelet horn hung down by his side, And slowly they baith rade away.

O they rade on, and on they rade, And a' by the light of the moon, Until they came to youn wan water, And there they lighted down.

They lighted down to tak a drink
Of the spring that ran sae clear;
And down the stream ran his gude heart's
blood,
And sair she gan to fear.

"Hold up, hold up, Lord William," she says,
"For I fear that you are slain!"

"'Tis naething but the shadow of my scarlet cloak,

That shines in the water sae plain."

O they rade on, and on they rade,
And a' by the light of the moon,
Until they cam' to his mother's ha' door,
And there they lighted down.

"Get up, get up, lady mother," he says,
"Get up, and let me in!—
Get up, get up, lady mother," he says,
"For this night my fair ladye I've win.

"O mak my bed, lady mother," he says,
"O mak it braid and deep!
And lay Lady Marg'ret close at my back,
And the sounder I will sleep."

Lord William was dead lang ere midnight, Lady Marg'ret lang ere day— And all true lovers that go thegither, May they have mair luck than they!

Lord William was buried in St. Mary's kirk, Lady Margaret in Mary's quire; Out o' the lady's grave grew a bonny red rose,

And out o' the knight's a brier.

And they twa met, and they twa plat',
And fain they wad be near;
And a' the warld might ken right weel,
They were twa lovers dear.

And bye and rade the Black Douglas, And wow but he was rough! For he pull'd up the bonny brier, And flanged in St. Mary's loch.

### LA BELLE DAME SANS MERCI

Some of us perhaps have seen Rossetti's picture of Keats' "Belle Dame" accompanied by the young knight whom, by her fatal charms, she has lured from honor and duty, and left to a strange, sad fate.

AH, what can ail thee, wretched wight, Alone and palely loitering:
The sedge is wither'd from the lake, And no birds sing.

Ah, what can ail thee, wretched wight, So haggard and so woe-begone? The squirrel's granary is full, And the harvest's done.

I see a lily on thy brow,
With anguish moist and fever dew;
And on thy cheek a fading rose
Fast withereth too.

I met a lady in the meads, Full beautiful, a faery's child; Her hair was long, her foot was light, And her eyes were wild.

I set her on my pacing steed,
And nothing else saw all day long;
For sideways would she lean and sing
A faery's song.

I made a garland for her head, And bracelets too, and fragrant zone; She look'd at me as she did love, And made sweet moan.

She found me roots of relish sweet,
And honey wild, and manna dew,
And sure in language strange she said,
I love thee true.

She took me to her elfin grot, And there she gaz'd and sighed deep; And there I shut her wild sad eyes-So kissed to sleep.

And there we slumber'd on the moss. And there I dream'd, ah woe betide, And latest dream I ever dream'd, On the cold hill side.

I saw pale kings, and princes too, Pale warriors, death-pale were they all; Who cry'd—"La Belle Dame sans merci Hath thee in thrall!"

I saw their starv'd lips in the gloom, With horrid warning gaped wide, And I awoke, and found me here On the cold hill side.

And this is why I sojourn here Alone and palely loitering, Though the sedge is wither'd from the lake And no birds sing.

### ODE TO THE WEST WIND

This is a very fine example of a lyric—that is, a poem which expresses the poet's own thoughts and feelings with spontaneity and unreserve. Shelley particularly excelled in this kind of work. His sensitive spirit was depressed by some cause or other, and he appeals to the west wind, who will upbear a dead leaf, a swift cloud or a wave, to lift him, too, above the thorns of life and scatter his thoughts abroad like the sound of a great trumpet blowing.

WILD West Wind, thou breath of Autumn's being,

Thou, from whose unseen presence the leaves dead

Are driven, like ghosts from an enchanter fleeing,

Yellow, and black, and pale, and hectic red Pestilence-stricken multitudes: O thou, Who chariotest to their dark wintry bed

The winged seeds, where they lie cold and low,

Each like a corpse within its grave, until Thine azure sister of the Spring shall blow

Her clarion o'er the dreaming earth, and fill (Driving sweet buds like flocks to feed in air) With living hues and odors plain and hill:

Wild Spirit, which art moving everywhere; Destroyer and preserver; hear, oh, hear!

Thou on whose stream, 'mid the steep sky's commotion,

Loose clouds like earth's decaying leaves are shed.

Shook from the tangled boughs of Heaven and Ocean.

Angels of rain and lightning: there are spread On the blue surface of thine airy surge, Like the bright hair uplifted from the head

Of some fierce Maenad, even from the dim

Of the horizon to the zenith's height, The locks of the approaching storm. Thou dirge 

Of the dying year, to which this closing night Will be the dome of a vast sepulchre, Vaulted with all thy congregated might

Of vapors, from whose solid atmosphere Black rain, and fire, and hail will burst: oh,

Thou who didst waken from his summer dreams

The blue Mediterranean, where he lay, Lulled by the coil of his crystalline streams,

Beside a pumica isle in Baiae's bay, And saw in sleep old palaces and towers Quivering within the wave's intenser day.

All overgrown with azure moss, and flowers So sweet the sense faints picturing them!

For whose path the Atlantic's level powers

Cleave themselves into chasms, while far below

The sea-blooms and the oozy woods which were

The sapless foliage of the ocean know

Thy voice, and suddenly grow gray with fear, And tremble and despoil themselves; oh, hear!

If I were a dead leaf thou mightest hear; If I were a swift cloud to fly with thee; A wave to pant beneath thy power, and share

The impulse of thy strength, only less free Than thou, O uncontrollable! If even I were as in my boyhood, and could be

The comrade of thy wanderings over heaven, As then, when to outstrip thy skyey speed Scarce seemed a vision; I would ne'er have

As thus with thee in prayer in my sore need. Oh, lift me as a wave, a leaf, a cloud! I fall upon the thorns of life! I bleed!

A heavy weight of hours has chained and bowed

One too like thee: tameless, and swift, and proud.

Make me thy lyre, even as the forest is: What if my leaves are falling like its own! The tumult of thy mighty harmonies

Will take from both a deep, autumnal tone, Sweet though in sadness. Be thou, Spirit

fierce,
My spirit! Be thou me, impetuous one!

Drive my dead thoughts over the universe Like withered leaves to quicken a new birth! And, by the incantation of this verse.

Scatter, as from an unextinguished hearth Ashes and sparks, my words among mankind!

Be through my lips to unawakened earth

The trumpet of a prophecy! O wind If Winter comes, can Spring be far behind?

### COAL MINING IN ALBERTA



Alberta is very rich in coal and even possesses deposits of the much prized and rare anthracite or hard coal. The larger part of the production, however, is bituminous or soft coal. It is estimated that the province has 30,000 square miles of coal lands with deposits amounting to more than a million tons. This amount is so large that we can form little conception of it. This is a general view of a mine at Lethbridge.



When coal is raised from the mine it must be carried to the places needed. Therefore it is raised above the railway tracks and is dumped into the waiting cars below. A whole train can thus be loaded in a very short time, and can then go on its way with its precious burden. This is a part of the mine buildings shown above.

Pictures, British and Colonial Press, Ltd

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### The Book of CANADA



Smelter and Power Plant, Anyox, B. C.

## THE MINERAL RESOURCES OF CANADA

In the Book of
Canada, you may
read of her scenery, her
great fisheries, the broad acres
of her farm lands, the romance
of the wheat fields of her
prairies, and her miles of forest
lands. Now we are going to think
for a few minutes of the treasures of
metals, and other minerals, that are
hidden in her mountains, and rocks,

or stored deep down under the surface of the earth.

Canada has been slow in developing her mineral resources. Fur trapping and woodcraft appealed more than prospecting for minerals to the adventurous spirits among the Frenchmen who made the first settlements in the country. The English-speaking settlers, from the Loyalists onward, who came after them, were all home seekers, and it was not until quite recently that any considerable effort was made to dig wealth out of the earth. Indeed, although the Dominion includes nearly half the continent of North America, until lately it was doubted whether Canada would ever become an important mining country. On account of the activity of the last few years, however, Canadians now hope that their country Copyright, 1918, 1921, by M. Perry Mills.

will become as rich in mines and metal industries as the

great republic to the south. Almost all the provinces possess mineral resources of importance, but only five — Nova Scotia, British Columbia, Alberta, Que-

bec and Ontario—have up to this time been large producers of the products of mines.

# IRON, THE MOST VALUABLE OF

Probably if a class of fifty of our school children were asked, "What are the most valuable metals known?" forty-five of them would answer in chorus, "gold and silver." Are they? Of what use would a gold plough or a silver harrow be? How long do you think a silver steam engine would last, or a steamboat made of gold? The Aztecs of Mexico and the Incas of Peru had great stores of gold and silver; but they went down before a mere handful of Spanish soldiers, who were armed with steel weapons. Gold and silver are valuable for many things besides money and jewelry, but iron is much more valuable to the welfare of the world than either, and the country that has stores of iron is fortunate.

Prince Edward Island is the only

one of the Canadian provinces which has Moreover, coal to provide no iron. heat to smelt the iron is found in vast quantities. Tungsten, which is used to harden steel for tools, is found, though not in large quantities, and the mineral called by the curious name of molybdenum, which is useful for the same purpose, is found in many places. Wartime needs led to diligent prospecting and extraction of the less known minerals.

Although deposits of iron ore have been found in Alberta, British Columbia, Manitoba, New Brunswick, Saskatchewan and Hudson Bay islands, it is only mined to any extent in Nova Scotia, Quebec and Ontario. Much of the iron smelted in Canada is imported. source of supply is the Wab na mines on Bell Island in Conception Bay, Newfoundland, where the ore is hematite of high grade. In Nova Scotia much of the iron lies close beside the coal beds, and coal can be delivered to the coke-making plants for little more than the cost of mining it.

Huge quarries of limestone in Nova Scotia produce the tons and tons of this stone that are used in the smelting mills. Of course this stone is found in very many other places in the Dominion. For instance, as we have read in another place, the Rocky Mountains are partly made of it. Limestone, as we know, is used in other ways, such as for building material and to make mortar, but it is interesting to speak f it here, because we do not often think of it in association with iron.

# CATADA'S GREAT WEALTH

We do not include coal among the metals; but as we have already spoken of it in connection with iron, we shall tell about it here. Ontario has only a very small deposit of coal, and Quebec has none. The deposits in Manitoba and New Brunswick are not very important, but there are vast supplies in other places. We may read elsewhere of the important mines in Nova Scotia and British Columbia, where the chief coal mining industries are carried on. Saskatchewan has large deposits; it is known that Alberta possesses over a trillion tons. including some anthracite, which have scarcely been touched, while in the Yukon and the Northwest Territories it is estimated that there are billions of tons.

### THE NICKEL MINES AND COPPER MINES OF THE DOMINION

We talk so much nowadays of nickel steel, the hard alloy of steel and nickel which is used for armor plate, bridge building and other purposes, that it is natural to think of iron and nickel at the same time. Large quantities of nickel are used in making this steel every year, and the metal is used in many other ways. Iron and steel are nickel-plated to prevent rust; nickel is used in making the alloy called German silver; it is used in making United States five cent coins and so on. It is interesting, therefore, to learn that three-quarters of all the nickel used in the world comes from the Sudbury district in Western Ontario, and that in spite of the large output of the mines, they show no sign of exhaustion. Nickel is also found in the northern part of Ontario, in what is known as the Cobalt district, but of this famous mining district, we shall speak presently.

The Sudbury district also produces large quantities of copper, for which you can think of so many uses, that we need suggest none. British Columbia, however, goes far beyond Ontario in the value of her copper mines. Copper is found in Quebec and Nova Scotia, and large deposits have lately been found by explorers on the frozen Arctic shores and in some of the Arctic islands. Valuable copper deposits have been discovered in Northern Manitoba and Saskatchewan, north of the Pas, and great development

is expected.

### OLD AND SILVER ARE FOUND IN G LARGE QUANTITIES

Many stories have been told of the rush to British Columbia when gold was first found, and later to the Yukon district. Nowadays the gold mining industry stands on a more business-like basis than in the early picturesque days. Large mining companies are formed. much machinery is used, and a great deal of gold is produced from gold-bearing quartz rocks, which the early miners could not reach, and great quantities of gold are every year shipped out of the country.

British Columbia has long been known as a gold mining country. It is the northwest continuation of the great gold and silver bearing belt of the Western states, from which so many hundreds of millions of dollars' worth of the precious 

# MINE IN QUEBEC AND BRITISH COLUMBIA



This mine is more like a quarry than what we usually think of as a mine. It is a magnesite mine in Quebec. Magnesite is a carbonate of magnesia, and is of various colors. It is used in the preparation of several medicines, and great quantities are also used in manufacturing paper, paint and brick meant to resist fire. Quebec magnesite is declared to be equal to that from Europe.

**^** 



Copper is one of the most useful metals found in Canada. Large quantities are found in British Columbia and Manitoba, and the production is increasing in both of the provinces. One bed at Flin Flan Lake in Manitoba is thought to be the greatest deposit in the world, though the proportion of pure copper is not high. This is a picture of the smelter at Trail, in British Columbia. Pictures, British and Colonial Press, Ltd.

metals have been obtained. Gold is found in paying quantities in almost every section of the province, and there is scarcely a creek where "color" cannot be found.

The history of gold mining in Ontario is not so picturesque as the story of the early gold days in British Columbia and the Yukon. Nevertheless Ontario has very valuable deposits of gold, and actually produces more of the precious metal The production than British Columbia. is increasing rapidly, and the Hollinger mine in Northern Ontario is claimed to be the richest in the world. Nova Scotia also produces gold, and its production commands the highest price. Recently valuable gold deposits have been found the Saskatchewan and the Churchill rivers. There is gold in Manitoba, in Alberta, and Quebec. The mines of the Yukon are still important.

If the gold mining story of Ontario is not picturesque, this cannot be said of the history of silver mining. In 1903 Ontario scarcely knew that she possessed silver; but in that year a wonderful deposit of silver ore, mixed with nickel, bismuth, cobalt, copper, lead and zinc, was discovered. Instantly there was a rush for the district; mining companies were formed, people mortgaged their property to buy shares, and there was much excitement. Generally the mines have been well managed, and the original shareholders have made a good deal of money, for the mines proved to be very These Cobalt mines, and the mines in British Columbia, which have been famous for a number of years, have put Canada third among the silver producing countries of the world. Small amounts of silver are obtained in Quebec and in Nova Scotia. Platinum, which is counted among the precious metals, is found in Canada, in paying quantities.

# LEAD, ZINC AND THE MINOR METALS

Lead is nearly always found with silver, and the Canadian silver mines are no exception to the rule. Lead is mined as an ore of silver, in which it may be looked upon as a by-product. The output is large, and practically all comes from British Columbia. The same thing may be said of zinc, which is found also in Manitoba, Nova Scotia and Quebec.

The world's supply of cobalt, from which we get the wonderful cobalt blue,

comes from the silver mines at Cobalt, and these mines also produce arsenic. Corundum, a hard mineral used in making grinding stones, is found in Ontario. Manganese and antimony exist in the Maritime Provinces and in British Columbia, and some cinnabar, or sulphide of mercury, is mined in British Columbia.

# PETROLEUM, OR ROCK OIL, AND

Petroleum you may think does not come under the head of mineral resources; but you know the word means "rock oil," and this thick, oily substance was made by the same forces of nature that produced coal. It is found in many parts of Ontario, and especially in the peninsula which stretches out between Lake Erie and Lake Huron. Petroleum has also been found in Gaspé, Quebec, in New Brunswick, and in British Columbia, and in Alberta and the Mackenzie basin there is a rich field awaiting development.

Wherever we find oil, we are not surprised to find natural gas; and this is true of Canada as of other places. Gas has been found along Lake Erie, in Ontario, in New Brunswick, in Alberta and in British Columbia, and is important for fuel, lighting and manufacturing.

# Materials used in building

In another place, we have told you about the white gypsum cliffs of Nova Scotia, and there you may also read of the gypsum quarries in New Brunswick. Gypsum is also found in Ontario, and large deposits of it have been found near Lake St. Martin, Manitoba, and it is also found in Alberta and in British Columbia. Very important deposits of asbestos are found throughout Ontario and Quebec, and give the world the largest part of its supply of asbestos, or mineral wool, as it is sometimes called from its woolly, fibre-like appearance. As you know, asbestos is almost absolutely fireproof, and its use for packing, for theatre curtains, and the like has prevented many fires. Shingles to cover houses are also made of it.

We might go on and tell you about the Dominion's supply of graphite and salt; of its granite quarries and slate quarries; of the clay from which bricks, tiles and cement are made; but if we did you might think of this story as being only an uninteresting geological catalogue.

THE NEXT STORY OF CANADA IS ON PAGE 6119.

# MINING FOR ASBESTOS AND FOR GOLD

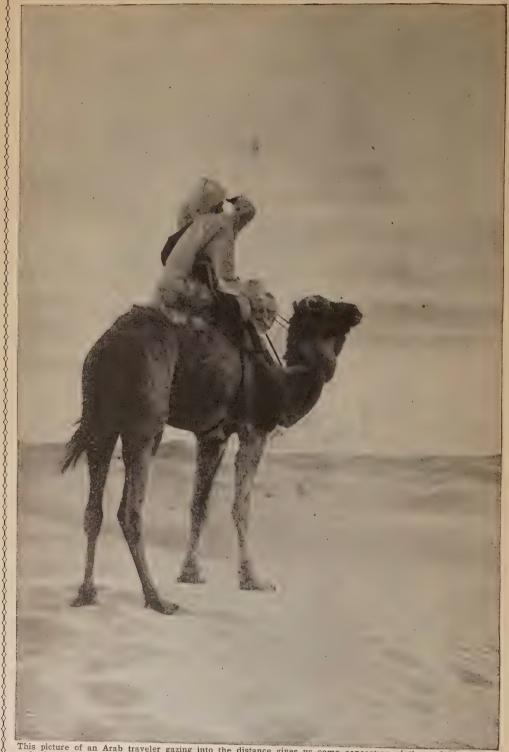


This is a picture of an asbestos quarry at Thetford, in Quebec. Asbestos is a curious mineral in which the rock crystals form fibres. The long fibres are spun and woven into fireproof cloth, which is used for theatre curtains, steam pipe coverings, and such purposes. The short fibres are made into felt and thick board. Paint is also made from the mineral. Most asbestos used in the world comes from Canada.



Hydraulic mining, that is, mining by water pressure, is now followed in many places where gold is found free in gravel beds. Strong streams of water, which are directed against the banks, break them down and carry the gravel into sluices. The heavy gold sinks, while the lighter stones and earth are washed away.

# LOOKING INTO THE VAST OCEAN OF SAND



This picture of an Arab traveler gazing into the distance gives us some conception of the awful loneliness and desolation of the Desert, with its vast ocean of sand stretching far out beyond the horizon.

# The Book of ALL COUNTRIES



# THE PEOPLES OF THE DESERT

THE WILD, FREE RACES OF THE EARTH AT HOME

A BURNING expanse of red, grey, brown, or white sand, thinly dotted with oases of wells and grass, and diversified with stony and rocky tracts—that is the scene which springs up in imagination at the very mention of

deserts. The mind at once flies to Arabia, the typical land of wilderness desolation, or to the vast African Sahara, for these two marvelous regions have always been, above all others, representative of the desert.

But the world's great deserts are vaster and more varied than most of us realize. There are many great uninhabited wastes in the world, caused chiefly by the lack of rain. This accounts for the existence of the great Sahara, in North Africa, which starts at Cape Nun, and stretches to the banks of the Nile, and then on the east of that river forms the Libvan Desert.

The most extensive of all the Asiatic wildernesses is the Mongolian Desert of Gobi. Arizona, one of the largest states of our own country, contains one of the biggest deserts of the New World. Other regions are arid and barren, bearing nothing but sage-bush and cactus. One of the

most dreaded of the deserts is that in the interior of Australia.

The Arabian and African

wilderness regions must ever

exercise the most fascinating

influence on the minds of civilized peoples. Consider the ways, for example, of the various tribes of the Arab race. The Arabs are mainly divided into two sections—those who inhabit towns, some on the borders of the desert, others within the wastes; and those who restlessly wander here and there. Now, the nomad Bedouin is very interesting. He has a hard life, but it is a very healthful one, and in some respects it is a happy existence, with its absolute freedom from town restraints,

desert air.

Two of the largest and wealthiest of the Arab tribes are the famous Anaeze and the Shommar. Both are dreaded by travelers, and among them are many persistent robbers. These tribes and several others are constantly warring, one against the other, and the settled existence to which we are accustomed in civilized countries is unknown to them. All except one particular tribe possess

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and its enjoyment of the pure sweet

splendid horses. Carrying very long spears, often measuring twelve feet, pointed with steel lances, the Bedouin horsemen riding on these lovely steeds present a fine spectacle, especially when they indulge in the picturesque games in which they delight. They are fond of galloping and racing, and they like also the exercises in which they play at war.

Arab steeds are so well trained as rarely to need an iron bit. The ordinary Arab bridle is almost the same as our halter-strap. The desert horse seems to understand its master, and almost to interpret his will by a movement or touch. Most of the horses belong to the sheikhs, or head men of the tribes, and, except when they are needed, are kept at some distance from the camp.

### THE WEALTH OF THE WANDERING ARABS

The Arab term Bedouin means desertdweller, and the traveler must wonder how these Bedouin tribes can exist at all in a vast sandy or rocky waste. Of course, there are great sandy areas, but a large part of the Arabian wilderness is a desert simply in the sense that it has

no settled population.

If all were absolutely barren, these nomad Arabs could not live and prosper, and grow wealthy as some of the sheikhs The fact is that very large tracts of the soil are excellent. In springtime, after a heavy rainfall, Northern Arabia becomes like an American prairie over large areas. Lovely wild flowers spring up that would delight the heart of a botanist. This explains why the wandering Bedouin are rich in the possession of thousands of cattle, of camels, of horses, of sheep, of goats.

Dr. Zwemer, who lived at Bahrein, in the Pearl Islands, and who has traveled much as a devoted missionary among the desert tribes, says: "I am sure you can still find some of these Bedouin chiefs who, like Job, have seven thousand sheep, and three thousand camels, and a great

household."

Just as in the time of Job, thousands of years ago, so do these children of the desert to-day dwell in black tents, made of goat's hair, which forms a perfect waterproof covering. These tents are square or oblong in shape.

THE STRANGE SPECTACLE OF A DESERT CAMP

An Arab desert camp is a singular

spectacle, but it is well worth visiting. For the journey into the desert from some outlying spot presents and a guide must be taken. The guide walks barefooted, for he prefers to carry his sandals tucked in his girdle.

Presently we come to flocks of sheep with their shepherds, who direct the guide to the camp, which never remains more than a month in one spot. It is sure to be pitched in some hollow, the deepest that can be found, for two reasons—the necessity of concealment from hostile bands of fellow-Arabs; and the advantage of shelter from the hot winds that blow over the desert plains.

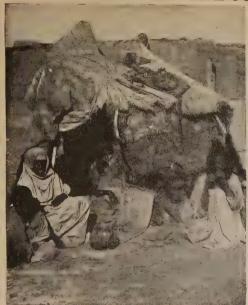
# THE DELIGHTFUL COURTESY OF THE ARAB

The great encampment is carefully arranged. Some tribes spread their tents in a great square in rows; others prefer a picture sque oval. One feature never is lacking—the symbol of the authority of the sheikh. This little king always plants his spear in front of his tent. Just behind it is the section curtained off for the reception of guests. And how effusive, and even pathetic, is the hospitality of these Arabs, robbers and assassins though some of them are! Their kind courtesy to friendly visitors never fails, even though in the desert they would rob the very same folks without the slightest compunction, and perhaps slav them if resistance were offered. But never is a Bedouin of the wilderness known to violate the beautiful law of hospitality. Out of the burning sunshine the weary traveler is welcomed. The women hasten to bring him water to cool his head. A great bowl of camel's milk is offered before any questions are asked. At night a fat kid or lamb will be killed, and a feast provided.

## THE MAGIC JUG IN THE DESERT

There are real luxuries in the Arab tents. The tents are spacious, for they will accommodate considerable quantities of several sorts of grain, chaff. fruits, dried fish, and wood. There is also ample room for refuge for fowls, goats, some cows, and a horse or two. The great main room has in the centre a large hollow which serves as the fireplace. The smoke must find its way out as best it can, so in time the tent become blacker and blacker; indeed, the old 

## THE HOMES OF THE PEOPLE OF THE DESERT





A Bisharin tent in the Sahara Desert.

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A group of Bisharin tribesmen in the great Sahara Desert. 



The City of Tunis, with its flat roofs, which largely take the place of gardens.



A miserable village in the Mongolian Desert of Gobi, with a fine Buddhist temple close by.



The picturesque market place at Assiout, on the Nile, with the mosque in the centre. 

# SCENES & PERILS OF THE DESERT TRAVELER



The mirage—an imaginary oasis suddenly appearing to a group of travelers.



A caravan crossing the Sahara, with "tents" on the camels for the women travelers.



A sandstorm in the great Australian desert. Camels have been introduced into Australia, for use in the desert.

THE BOOK OF ALL COUNTRIES -

Bible phrase which speaks of the black tents of Kedar is as applicable now as then.

One great blessing is the famous porous jug. The Arabs who live and work in towns make unglazed water-jugs and jars. These are an unspeakable benediction to the people, for they have no ice. The wells are never very deep, and the water comes from a long distance. Thus, were it not for the water-jugs of this kind, cold water would be unknown. How, then, is it cooled? Very simply. If poured into one of these porous earthen pots and hung for a few minutes in the wind, the effect is astonishing, for the beverage becomes deliciously cold and refreshing.

# HAT THE PEOPLE EAT AND DRINK

Palatable and wholesome is the desert fare. There are luxuries also in the food, though we should hardly relish favorite dishes of the tribes, such as leben, the peculiar sour milk of mares and camels, which in Turkey is called yoghurt; pilaf, which is rice beautifully cooked and containing little shreds of lamb, or kid, or chicken. But when the Arabs make a great feast in the desert, they roast a sheep or goat whole on red-hot stones. Hard biscuits in the shape of rings, called kak, are much relished, and so is the peculiar butter called ghee. When the Arabs have to carry water about, they do so in great leathern bottles made of the whole skins of sheep and goats.

One beverage that is enjoyed in the desert cannot be excelled anywhere in the world. Coffee was first brought to Arabia from Abyssinia about the year 1400 by a pilgrim, whose tomb in Yemen is an object of veneration; and the seeds planted in Yemen produce the Mocha coffee which is so famous.

# DATES AND SUGAR-CANE

The chief of all foods among the desert peoples is the date, and the most precious thing that grows in the countries inhabited by these tribes is the datepalm, one of the noblest and most graceful of all trees. The Arabs of the desert eat much wild honey, and will feed abundantly on locusts when they can: they also feast eagerly on the big lizards that dart among stony places, and do not disdain even the jerboa.

the great article of diet is the date, without which the Arab of the wilds could hardly subsist. A joyous time is the festival known in the springtime as the Marriage of the Date Palms, when the soft spring breezes waft the pollen from the male to the female blossoms.

Arab children are never happier than when they are sucking sugar-cane, which is cut into pieces and sold by the knotthat is to say, by the length of the stick from one knot to the next. But nothing is so abundant as dates. Sometimes for many weeks nothing else will be eaten in an Arab tent, and even the donkeys and camels are fed on this fruit. Outside many a tent at this moment will be Arab boys and girls playing games with date-stones on the smooth sands. None of the date-stones are thrown away, for they are ground up into a coarse kind of meal for cattle food. Indeed, nothing is wasted that belongs to the date-palm. The fragrant blossoms make a favorite beverage, and if the fruit that has not been consumed turns stale and somewhat musty, it is converted into vinegar. The leaves are woven into strings, fans, mats, and baskets, and the long, thin, strong branches are made up by the carpenters in the towns into chairs, cradles, cages, beds, boats and countless other things.

## THE BREAKING UP OF A CAMP

One event in the desert is always exciting. This is the breaking up of a camp for a migration. When a tribe shifts its quarters, all possible preparations are made on the previous day, and, early in the morning, everything is in motion for the great departure.

Tents are taken down and packed, and soon the country is full of camels and flocks and herds and Arabs. Sometimes ten or a dozen camels will be arranged in procession at considerable intervals from each other. To the back of each camel are fastened four upright poles, which support a canopy called a merkab. On this erection rides an Arab girl, prostrate on her breast. girls are always the sisters of heroes men who have won fame in battle.

### THE SOLEMN MAJESTY OF A SEA OF SAND

The Bedouin Arabs are ignorant in one sense, for they have no schools and few can read and write. 'They  $\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\diamond\circ$ 

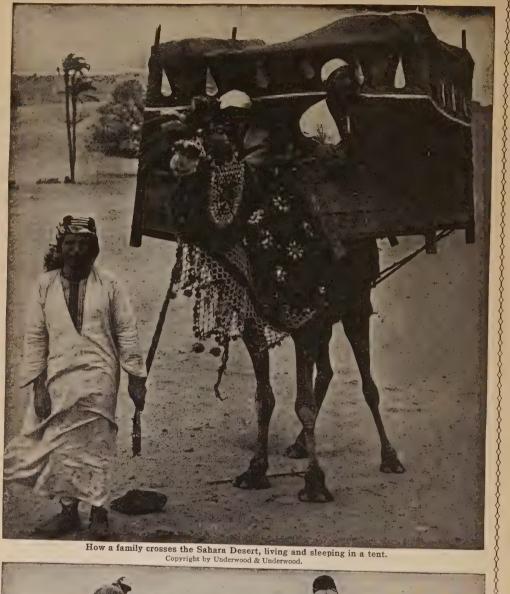
# AN ARAB SCHOOL AND AN ARAB WORKSHOP



A Mohammedan school in Egypt, where the boys wear their hats and take off their shoes.



This is a photograph of some Arabs at work. Using their fingers and their toes, they carve wood with amazing rapidity into beautiful shapes, making screens, boxes, and cabinets, which go all over the world. 



How a family crosses the Sahara Desert, living and sleeping in a tent.

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A pathetic scene in the desert: a camel sinking in the sand of the terrible Desert of Gobi. <del>\$\$\$\$</del>6104\$\$\$\$

temperate, for as Moslems they never taste intoxicants. There are no mosques in the deserts, of course, but these children of the wilderness are much given to prayer. The first chapter of the Koran is recited in every tent five times a day, while the worshippers prostrate themselves toward Mecca.

## THE VISION OF THE DESERT SKY

Caravans—what scenes this conjures up! The longest and most perilous caravan expeditions are those which cross the great Sahara, and this vast African desert has its charms, its unspeakable fascinations, its indescribable phenomena. One of these is the mirage, the reflection in the sky which has puzzled so many travelers in ages past.

A traveler riding in the Syrian desert from Bagdad to Babylon was perplexed by seeing what looked like the great ruin Akarkuf, though he knew that it was more than thirty miles distant across the desert. Really what he saw was an old well, only a few hundred vards from where he stood wondering. Distressing have been the experiences of the members of great camel caravans crossing the Sahara, parched with thirst, under burning

skies, suddenly plunged into ecstasy by the full view of palm-trees forming a lovely oasis at a little distance—for palmtrees always mean a delicious well close by. The travelers have in some sad instances rushed on to find that they had been mocked by a mirage, and men and

beasts have perished.

The towns that border the deserts often lie in the centre of surrounding barren solitudes, as does Damascus, the oldest city on earth, where are lovely gardens, watered by fountains from Abana and Pharpar, the twin rivers that rush down from the snows of Lebanon.

Spots of enchantment in the Libyan Desert of Africa are the lovely oases, great patches of vegetation caused by the presence of water-springs. Four very large and beautiful oases are inhabited by the great and famous tribe of Mugrebi Arabs, who love their gardens and villages embowered in date-palm groves, with sparkling fountains ever refreshing them. One of the most dreaded perils of the desert is that hot wind called by the Arabs the simoon. When this fierce and burning blast sweeps across the vast wastes it is deadly in its effect. Everyone in a caravan must, in order to escape alive, kneel in the sand with the mouth close to the ground, and, if possible, in the shelter of a camel, a roll of bedding or even a saddle.

The town-dwellers are gifted and clever. They excel in some crafts, especially in various sorts of woodwork.



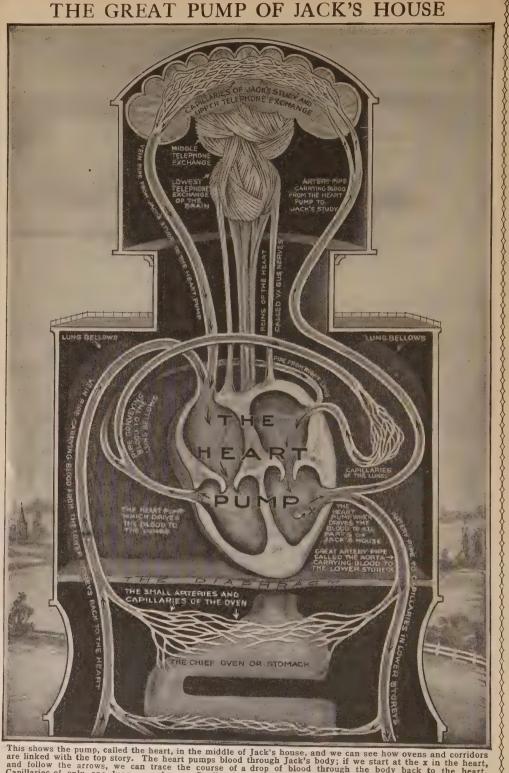
AN ARAB COURT OF JUSTICE IN THE DESERT

That delicate and ornate latticework which is seen in windows, doors, boxes, and cabinets is highly prized. Glass for windows is rarely used in Arabia excepting by Europeans, or by a few Arab families who have learned some of the Western ways. But in Arab houses are to be seen some of the loveliest windows that can be imagined.

The Arabs call a window shibaak, which means a network. The joiner fashions a most delicate fabric out of date-palm wood or bamboo, making little round bars, and fitting these to each other in a great variety of decorative designs. Through this fine latticework light and air come into the room, but none can look through upon the inmates from the outside world.

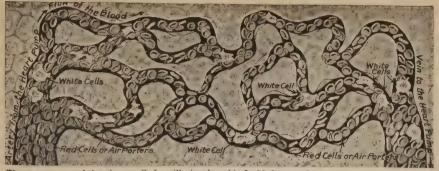
CONTINUED ON PAGE 6178.

#### JACK'S HOUSE GREAT PUMP OF



This shows the pump, called the heart, in the middle of Jack's house, and we can see how ovens and corridors are linked with the top story. The heart pumps blood through Jack's body; if we start at the x in the heart, and follow the arrows, we can trace the course of a drop of blood through the body back to the heart. Capillaries of only one lung are shown. Really the capillaries spread through every part of the body.

# The Book of OUR OWN LIFE



These are some of the pipes, called capillaries, found in Jack's house. Through these pipes, which are so small that 2,000 could lie side by side in an inch, the blood runs to every part of the body, carrying the red cells, which bring air, and the white cells, the chemists that keep microbes out.

# JACK'S WONDERFUL PUMP

AND THE LIFE-STREAM THAT FLOWS THROUGH HIS HOUSE

WE have seen that the middle of Jack's house is the pumping and ventilating story, and we know that Jack's central pump, which is to be found right in the middle of this story, is usually called his heart, and that its business is to drive the blood all through Jack's body. We must study Jack's pump, the pipes through which it drives the blood, and the blood it pumps—blood which first of all is the water-supply of Jack's house, but is also many faster

The first fact about the great pump is that it is alive. From this point of view, we might almost compare it to a horse, especially as it has a pair of reins. These reins are most important, and if they are cut by an accident, or if some poison rots them, Jack

other things of the greatest importance.

will certainly die.

The reins of Jack's heart, or pump, are called the vagus nerves, and one of them runs down each side of his neck from his brain to his heart, close beside the great pipe which we can feel beating on each side of the neck. These reins are held, so to say, by servants of Jack, who live in the lowest part of his brain, which is called the

bulb, the lowest of the three telephone exchanges of Jack's house. So long as

Jack is alive and well, these reins are never let go, but if we wish to find out what they are doing, it is necessary to watch

the consequences of cutting them or poisoning them. If such an accident should happen to Jack we would find that the great pump, which was beating at the rate of, say, eighty times a minute, would at once begin to beat faster and faster, but that every beat would be weaker than the last until it came to a stop, having worn itself out. The commonest and best known of the poisons which act on the heart, so that it races itself to death, is called belladonna, and it is the poison found in the beautiful berries of the deadly nightshade.

But many other things besides the deadly nightshade will affect the beating of Jack's pump, either by making a pull on the reins, or by letting them fall loosely, as it were. Great pain or fear or a sudden shock of any kind will sometimes cause such a tug at the reins that Jack's heart stops on the spot, and he must die in a few seconds, unless the tug at the reins

relaxes. It usually does so very soon, and all we say in such cases is that Jack has fainted. He faints, or perhaps it is better to say he loses consciousness. because the pump ceases to send blood up to his study in his brain, and he cannot

On the other hand, fear and many other things may often relax the reins, so that the pump beats much more quickly and, at first, more violently. As soon as the disturbing cause is past the reins are tightened up again, and the heart begins to beat in an orderly and quiet way as before. In other cases, we find that poisons—such as the poisons in tobacco-neither tighten the reins nor relax them, but keep on jogging at them so that Tack's heart loses the beautiful, even smoothness it is meant to have, and commences to beat irregularly. Then the doctor says that Jack has a "tobacco The irreheart," and shakes his head. gular beat tells just as quickly of damage to Jack's pump as an irregular throb tells of trouble in the engines of a great ship.

### THE REINS OF THE HEART WHICH ARE WORKING FOR EVER NIGHT AND DAY

The value of these nerves, or reins, of the heart is that they are connected with every part of Jack's house, and by their action can make his pump beat slower or faster, according to the special needs of the time. Also their existence and action mean that Jack always has something in reserve for special demands. If he is chased by a bull, his nerves will relax their control for a little, and will let his heart go to serve his legs when they are much needed. But from the beginning to the end of the history of Jack's house these reins are always acting to some extent, day and night, and Tack has no better or more necessary servants than those nerve-cells in his lowest telephone exchange.

The heart itself is strictly and literally a pump—not like a pump, but actually a pump. There are two kinds of pumps, those which press, or force, a fluid to move, and those which move it by suction. The pump in Jack's house is a force-pump of which the walls are alive.

### THE FOUR CHAMBERS WITH THE LIVING WALLS

But, though the heart is truly a forcepump, it is much more complicated and infinitely more wonderful than 36

other pump in the world. It has four spaces, or chambers, inside it, each with its own living wall, and each with a strong and perfect valve, so that the blood can only move forward, in the direction which Jack requires. muscular walls are made of living cells, long and narrow, which have the power of making themselves short and thick. These living cells, or muscular fibres, are Jack's humble but invaluable servants, his "drawers of water," and they are arranged in the walls of his pump in a most complicated way, which it would take a book to describe. these cells, or fibres, that do the actual work on contracting the heart and forcing out the blood.

The other great fact about the pump is that, at various places in its walls, it contains numbers of nerve cells, which order the muscle-fibres to contract. But it would never do for Tack's pump to work independently, without reference to the needs of the whole, so these nerve-cells, which rule the muscle-cells of the heart, are themselves under the control of the vagus nerves, and also of another pair of nerves, which do not act all the time, but can be used on occasion. When they act they make the heart beat more powerfully.

#### TOW THE PUMP DRIVES THE LIFE-STREAM ROUND AND ROUND

A great Englishman, William Harvey, about whom we read in another place, found out what happens when the four chambers of Jack's pump beat and drive the blood. Harvey found that the blood goes right round the whole of Jack's house in a circle, or, rather, in two circles, which meet in the heart. The pump is really two pumps—a left pump, which drives the blood to all parts of Jack's house, and a right pump -not quite so strong—which only drives it to the lungs in order to receive pure air and get rid of foul air. We shall understand this better when we come to study the ventilation system.

We now have the picture of this great pump, which is placed in the very middle of Jack's house, and beats away, night and day, so long as he lives, driving his water-supply through a system of closed pipes, which leave his heart and return to it; but we shall not see any use in this process unless we understand that these pipes are of a very unusual kind.

The various pipes have various names —arteries, veins, and capillaries. one of these, however, has any holes in it, and, so far as we can discover by looking at this water system, it simply goes round and round within these closed pipes.

That would be a useless performance if it were so. But the smaller pipes, called capillaries, because they are as fine as hairs, are exactly what the pipes of an ordinary water-supply ought not to be, for they let things through, and that is the essential point of the whole wonderful system. They leak both ways, so to speak, and let all manner of things be taken out of the blood, and also let all manner of things into it through their porous walls. The whole object of Jack's pump, and of this system, of pipes, is to allow this passage in and out through the walls of the capillaries.

In one other point, above all, do these pipes differ from those of any ordinary water-supply. They are lined with living servants of Jack, muscle-cells very much like those in the great pump itself. Thus the size of the pipe in any given place can be altered at will—or, rather, not at will, for these servants are controlled from Jack's lowest telephone exchange, and not by his will at all. They are under the control, everywhere, of two sets of nerves, one set making them contract and narrow the pipes, and another making them relax and widen the pipes.

### WHAT IT IS THAT HAPPENS WHEN WE BLUSH

We see the consequences when, for instance, we blush, and feel a flood of warm blood surging through our cheeks. The order has gone forth, quite apart from or even against our will, to open the sluice-gates, and then the blood pours through into the capillaries of the After every meal, the walls of the stomach are made to blush in just the same way; and Jack's house could not exist if it were not for these automatic arrangements, or "reflex actions," as they are called, whereby his lowest telephone exchange controls his pump and his pipes.

And now it is time to study the marvelous fluid which is driven by Jack's pump through the system of pipes or flexible tubes which we call his bloodvessels. What is it made of? What is the good of it? Where does it come from? 

In the first place, as we have just said. it is the water-supply of Jack's house. This is no small matter, for water is far more necessary in his house than in any It is certain that all kinds of houses which living things inhabitanimals, or plants, or men-require water. In Jack's case the water is entirely taken in by his mouth—not by his skin at all; just as, in the case of a tree, the water is all taken in by the roots, not by the leaves, no matter how wet with rain or mist or dew they may become.

### THE PRECIOUS THINGS THE RIVER CARRIES

The water which enters runs down Jack's red lane, and is picked up by the capillaries that line the walls of his great corridor. Then, of course, it forms part of his blood, and is driven along by Jack's pump. The other half of the story is that, just as the water leaked into the pipes at one place, so it leaks out of them at others after its work is done. It is always doing so.

The water which enters the blood from the central corridor leaves it by leaking through the capillaries of the kidneys, the capillaries of the skin, and the capillaries of the lungs. This leakage of water never stops-it is always going on. Every breath we breathe out contains water; water is always leaving by the skin, and water is always being filtered through the kidneys. all these cases the water carries with it rubbish, so that Jack's water-supply is also a drainage system.

### THE FOOD FOR JACK'S MILLIONS OF SERVANTS

Tack's system, however, is no ordinary water-supply. It is a river of life, ever flowing, and carrying on it, or, rather, in it, many things just as necessary for the house as the water itself. Indeed, after food has been chopped up and cooked in the kitchen, all the useful parts of it are taken into the blood, just like the water. The pump, therefore, sends through the body not only water but also the food necessary to build it up and keep it in repair.

Here, again, comes in the beauty of the fact that the smallest pipes of this water system are so thin that they leak; and, more especially, that they leak in such a way that they let through only what is wanted. For now we come to the real eating that goes on in Jack's

house. All his millions and millions of servants require food, and one of the great duties of his pump is to carry their food to them as they work away in the dark.

### THE RED AND WHITE SERVANTS WHO GET OLD IN SIX WEEKS AND DIE

Thus the blood which is always being pumped from the heart, and has first reached the heart carrying all kinds of food and fuel from Jack's central corridor, is sent to every part of Jack's body; and leaks through the walls of the capillaries, together with much water, producing a fluid called lymph, which is the prepared food for all Jack's servants—the chemists in his laboratories or glands, the strong slaves that make up his muscles and so on. So the blood is not only water, but food also, for Jack's living servants, and it is just because they require food and water that Tack requires them.

This rushing life-stream, which carries food everywhere, is crowded also with living servants of Jack, some white and some red. The red ones never leave the stream. They are born inside Jack's bones and join the blood as it flows through the marrow of the bones. Then, for about six weeks, they travel round and round Jack's body, until they grow old and die, and break up. All this time their important duty is to carry fresh air from Jack's ventilating system

to every part of his body. THE WANDERING CHEMISTS WHO HELP

JACK IN TIME OF DANGER

Jack's living servants are always breathing, and need air. A little air can be dissolved in the blood and carried along, but not enough for the needs of Jack's servants. The rest is carried by the red porters who inhabit his blood, and as they pass through thin-walled capillaries they give up this air, and then are pumped along until they reach Tack's lungs again, where each of them is again provided with a load of the fresh air that he has just breathed in.

If there are too few of these red porters in Jack's house, he is pale, gets out of breath too easily, and suffers from headache. Sometimes, however, if he swallows a little iron for a few weeks, his redbone-marrow will make many new red porters, and he will grow better.

The other inhabitants of the blood are the white cells, which carry part of

Jack's fuel from his great corridor to his liver. It has been discovered, too, that they are a sort of wandering chemists, who produce special substances for the benefit of Jack's house. For instance, if one of Jack's blood-vessels is broken, by a cut or a scratch, or in any other way, of course the blood begins to leak out all together; and if this went on long enough, Jack would die. But the white chemists of his blood produce, just at the right moment and the right place, a substance which coagulates the blood or turns it solid, so that it flows no longer, and the bleeding is stopped.

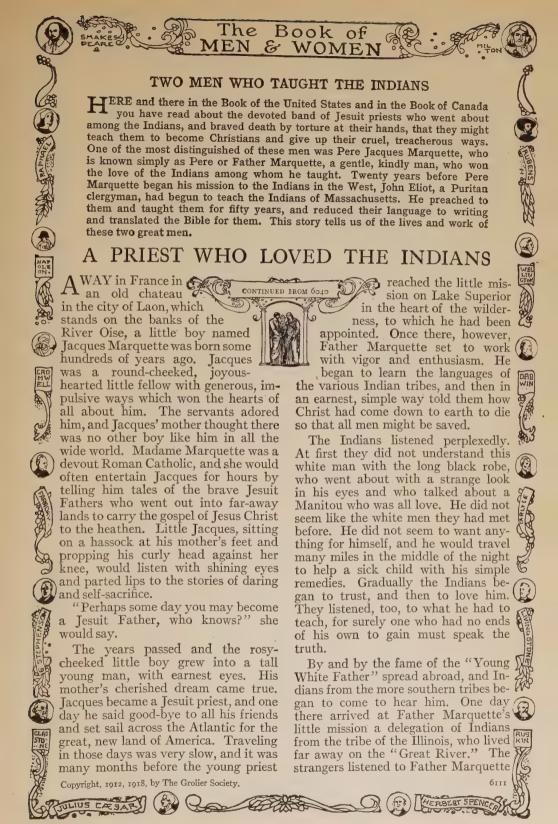
But we never see the white cells at their bravest until a burglary occurs in Jack's house—a thing which often happens. We shall find how the white cells are prepared to die by millions for Jack, and how they kill the intruders who seek to kill him. whole story is wonderfully interesting.

How you may feel the great pump beating

Now put the forefinger of one hand on the front of the other wrist, and feel your "pulse." Then feel another pulse at the side of your neck, and then another which crosses the hard bone just in front of your ear. These are a few of the places where we can notice how the pipes swell at each beat of the great pump—swell to the fluid which is water-supply, food-supply and airsupply, and in which swim porters and soldiers. If the pump beats eighty times in a minute, think how many times it must beat in a life of eighty years, resting only between the beats, and with no wages but just enough to keep itself going.

This is the tireless, faithful heart, and we need not wonder that in all languages it is the symbol of courage which no dangers can daunt and of service which is true till death. Some of our most interesting expressions which describe bravery or cowardice make use of the word "heart" to strengthen their meaning; such as "brave-hearted" and "true-hearted," or "faint-hearted" and "down-hearted." The heart is the seat of life, and according as the heart is a good heart or a bad heart the whole body is affected, and it is the same with the character of a boy or girl, whose heart is good and true or weak and cowardly.

CONTINUED ON PAGE 6230. 



as he preached, and then they presented themselves before him.

"Let the Young White Father come to the people of the Illinois," they said. "I cannot leave my mission now, but I will surely come," promised Father Marquette, his heart aglow within him at the thought of this wonderful opportunity.

From this time on Father Marquette made it his special prayer that the way might be opened to him to go to the Indians of the Illinois. One day there arrived in the camp a small band of men under the leadership of a young man named Louis Joliet, who had been sent by Count Frontenac, to explore the "Great River." Father Marquette was instructed to go with him on the journey. It seemed so like a direct answer to his prayer that the good priest was filled with thanksgiving and he eagerly prepared to

join the expedition. The journey began one bright spring morning late in May. The adventurers launched their canoes and paddled gaily over the sparkling waters of Lake Michigan to Green Bay, where they found an encampment of the Wild Oats Indians, who crowded around the white men. Father Marquette was able to talk to them in their own language, and he told them that his party was bound for the "Great River." The Indians listened to his words in polite silence, but when he paused, they tried earnestly to persuade

the voyagers not to go forward. "What are they saying?"

Joliet, curiously.

"They say," said Father Marquette, "that we will surely be killed. They say that there are wild Indians and great water monsters and a horrible river demon." He turned to the Indians and spoke with a ring of triumph in his voice. People of the Wild Oats," he said, "the white men are not afraid of river monsters or demons, for they have with them always the spirit of the great Manitou, who will let no harm happen to them."

Then the white men bade good-bye to the wondering Indians, and set out to paddle up the Fox River. The upper course of the stream was so shallow that the adventurers were obliged to carry their canoes and walk along the bed of the river. The way was rough, and often the sharp stones cut through the men's 

moccasins, but the party was in high spirits. As they marched sturdily along, now and again one of them would break into a rollicking French song, and the others would take up the refrain in a resounding chorus. Joliet and his followers were filled with excitement at the prospect of adventure, and Father Marquette was radiantly happy in the thought that he was going into a strange land, to death, on his Master's perhaps business.

When they had gone to the head of the Fox River, they made a portage, that is, carried their canoes across the country to the Wisconsin River, and soon were floating on its pleasant waters. After a week on this river, they reached the Mississippi on June 17, 1673. The enthusiastic young missionary wrote that he saw the great river "with a joy that

I cannot express."

Day after day, week after week, they journeyed down the "Great River." They encountered strange scenery, strange animals, strange birds and strange tribes of Indians of the interior. Wherever they upon an Indian encampment, Father Marquette preached the gospel of Jesus Christ. "I know not whether they understood what I told them of God and the things which concerned their salvation. But it is a seed cast in the earth, which must bear its fruit in season," he wrote in his diary with his engaging hopefulness.

A thing that is strange to record, compared to every other narrative of the time, is that there was no quarrel between captain and priest. Father Marquette and Captain Joliet got along famously. The captain respected the shrewdness and good judgment of the young priest and often sought his advice. Joliet himself had studied to be a priest, but the wild, free life of the woods drew him away from his books to make him a famous

explorer.

Although intent upon making converts of the Indians, Father Marquette was also keenly interested in the exploration end of the expedition. He tasted the mineral waters of Wisconsin; he tested on his paddle the colored clay used by the Shawnee Indians for coloring their skins; and he cheerfully wielded his canoe paddle with the best of the men. The two men were well matched.

As they got further and further down

the Mississippi, the heat became intense and the mosquitoes were so thick that they were almost unbearable. The explorers found that the Indians on the lower river slept on high scaffoldings, under which they built a smudge fire, and they too were obliged to resort to this method to escape the swarms of stinging insects. At last a few days more would have brought them to the mouth of the Mississippi, but Joliet had heard that the Spaniards were in possession of the land around the Gulf of Mexico, and after a consultation with his men, he decided to turn back.

On their return they turned into the Illinois River and paddled up to its source. Then they carried their canoes across to Lake Michigan. It is thought that they reached the lake near the present city of Chicago. Then they paddled up Lake Michigan to Green Bay again. In four months they had traveled more than 2,500 miles in their canoes.

On the way back they passed through the village of the Kaskaskia Indians, who begged Father Marquette to remain with them and establish a mission. But the young priest's health had been seriously affected by the tropical heat of the midsummer sun and the unwholesome, moist climate of the lower Mississippi, and he was now very ill. He was very loath to leave the Kaskaskia without telling them of his "glad tidings," but his companions refused to leave him behind in the wilderness, and Father Marquette, who was too weak to protest, promised to return to the interior as soon as he was well.

When he was again able to travel, he set out with a little band of his convert Indians to keep his promise to the people of the Kaskaskia, but he got no further than the present site of Chicago, when he was again attacked by his terrible disease, so he was obliged to stop on his journey and spend the winter among the Indians of this region. As in every place where he had gone, he soon won the devotion of the Indians of the Chicago tribes. From all around they came to listen to the inspired words of the "Young White Priest." The Indians believed in Father Marquette and loved him as they believed in and loved no other white man. And why? Because he believed in them and loved them as no other white man had ever done. He saw no guile, nor treachery in the Indians. Where others saw only bloody, repulsive savages, he saw men-red, in truth, but with unselfish, 



In the Capitol at Washington there stands a statue, erected by the State of Wisconsin, in honor of the brave missionary priest, Father Jacques Marquette, who was one of the white men to explore the Mississippi River. The story of his life is a beautiful one, and it is no wonder the Indians loved him.

hospitable, generous natures and a deep

religious sentiment.

In the spring of 1675, Father Marquette was again stronger, and he went on to the Kaskaskia to establish the mission, as he had promised. Here illness again overtook him, and he set out for Canada, accompanied by a handful of his Indian friends, to die among his own people. Day by day, as they hurried northward, the young missionary grew weaker, until at last, when they reached Lake Michigan, he knew that the end was near. He had met all his pains cheerfully and uncomplainingly, and now he faced death with a sort of exultant joy—joy that he should be allowed to die in his Master's cause. Ouite simply he told his Indians that he was glad to go, and spoke

of the joy that awaited him. Then he asked to be carried to a little hillock that overlooked the lake.

"I thank you for your patience with me in my sickness," he said. "I am sorry to have given you so much trouble."

Then he told them to go to sleep and get a little rest. He would call them when he felt that death was coming. For a while he remained in silent prayer. Presently he called, and there in the wilderness, surrounded by a handful of devoted Indian converts, Father Marquette died at the age of thirty-eight. His bones were not allowed to remain in the wilderness, but were carried by some of his Indian converts to the chapel of the Mission of St. Ignace, which had been founded further up the lake.

## JOHN ELIOT, THE APOSTLE TO THE INDIANS

WHEN Pere Marquette was a curlyhaired boy, listening to mother's stories, John Eliot, the great Puritan teacher, had already begun the work among the Massachusetts Indians which won for him the name of "The Apostle to the Indians." He aimed at nothing less than providing Indian teachers as missionaries to spread the gospel among their own people, and at that very time he was engaged in perfecting his knowledge of their language that he might be able to teach them to read.

John Eliot was born in England, in 1604, probably at a little town called Widford, in Hertfordshire, where he was baptized. We know little about his boyhood, except that he had a happy home, and was well taught, so that at the age of fifteen he was able to enter Jesus College, Cambridge, where he graduated at the age of nineteen. His father, Bennett or Benedict Eliot, was a yeoman, that is, a man who owned land, but had not a large estate. He died when his son John was seventeen.

After he left the university, young Eliot became assistant in a school, where he taught for about seven years, and a delightful teacher the boys under his care must have found him. Some time during these years it is believed that he was ordained, and possibly he preached to the people among whom he lived. Certainly, he gained their friendship and confidence, and before he sailed away to

the New World, a number of them told him that they would follow him, and gained his promise that he would be their teacher. By this time Thomas Hooker, the principal of the school in which he taught, and probably John Eliot himself, had fallen under the displeasure of Laud, the Archbishop of Canterbury. school had been broken up, Thomas Hooker had already left the country, and in 1631, John Eliot sailed for Boston to begin life there. The good ship Lion, in which he sailed, made a prosperous voyage. Ten weeks after he embarked he landed in Boston, where the people held a day of thanksgiving for the safe arrival of the ship, which also brought Governor Winthrop's wife and children. Throughout the winter, John Eliot, ministered to the church in Boston, for Mr. Wilson, the pastor, had gone to England to bring his family to their new home. The young teacher won the love of the stern Puritans of Boston; but they could not keep him, for early the next year his friends arrived, as they had promised. and made a settlement at Roxbury, and in accordance with his promise, he went to them.

The following year, Hannah Mumford, or Mulford, to whom he had been betrothed in England, joined him. There was a simple wedding in Boston, and they began their long and happy life together in Roxbury. For sixty years thereafter, he taught and preached in Roxbury, and took  a prominent part in the church affairs of the little colony. He was one of the three men who arranged the Bay Psalm Book, of which you remember we have spoken in the story of Songs and Song Writers. He was prominent, too, in educational matters, and was one of those who signed an agreement to build a free school in Roxbury and support a schoolmaster.

While he went about his duties, the state of the Indians weighed heavy on his mind. He was a man of loving spirit, and their savage life and pagan beliefs grieved him sorely. At length he took

grammar for it, and when that was done he translated the Bible into it. This took time of course. First he translated a little catechism, then the Book of Genesis, after that St. Matthew's Gospel, and so he went through the whole Bible, bit by bit. This translation of the Bible into the Indian tongue was the first Book printed in New England.

Meantime he continued to teach the Indians, and to help them to live in a better way, he founded a town for them at Natick, where they learned to cultivate the land set apart for them, and he



John Eliot Preaching to the Indians.

into his house a young Indian, from whom he set to work to learn the language of the Pequod tribe so that he might teach them, and in 1646 he preached his first sermon in the Indian tongue in the wigwam of Kitchomakin, in a grove at the mouth of the Neponset River.

But this good man was not content to teach the Indians by preaching to them. He wanted them to believe intelligently the things that he taught them, and he wanted to raise them up from the wretched way in which they lived. Not content with learning to speak their language, he set himself to the task of making it a written language, and making a taught them that cleanliness is next to godliness. His converts learned to read and before admitting them to the church, he demanded that they should follow the stern rule of life laid down by the Puritans.

Every other Sunday, year in and year out, he went on horseback from Roxbury to Natick, which is some miles away, and it is said that his horse's feet made a beaten path through the woods. Stern though he might seem, he was sweet and loving and gracious and of a humble spirit. Always his horse was laden with comforts for the Indians and his pockets were filled with cakes and apples and goodies for the children, whom he loved.

"The care of the lambs," he wrote, "is one third part of the charge over the worke of God." When years told on his frame and his friends tried to induce him to give up his labors for the Indians he refused, saying, "I will never give over as long as I have legs to go." He firmly believed that the Indians were the remnants of the Ten Lost Tribes, of whom you have read in the Story of the Scattered Nation. He hoped to bring them back to the state from which he believed they had fallen, and so he labored for them year after year. In one winter he translated the whole book of Psalms. At first he preached under a great oak tree, which still stands at Natick; but after a time a church was built, in which there was an upper chamber, where the apostle might spend a restful night after the labors of a day of preaching and teaching were done.

Not content with teaching at Natick, he went on missionary journeys, and it is said that he traveled through the woods from Cape Cod to Concord. At first he not only had to face the danger of capture and torture by hostile Indians, and to work against the opposition of the Indian chiefs, but he was also opposed by the settlers, who believed that no good could be gained by teaching Indians. Nevertheless he persevered. As the years went on many converts were made, and there were no less than seventeen villages of what were called "praying Indians." But in 1675, an Indian chief, known as King Philip, made war against the English settlers. He and his followers and allies committed such cruelties that the settlers were roused to a state of fury against all Indians, and though few of John Eliot's converts joined Philip, they were all removed from their villages to Deer Island and to Long Island in Boston Harbor. After a time, at John Eliot's earnest request, they were allowed to help the settlers to overthrow Philip, and later they were permitted to return to Natick, and three other villages, but the Christian settlements were never so strong again. After the war was over, John Eliot protested against the sale of Indians as slaves. His charity was never failing, and it is known that at his own cost he brought back one man who had been sent to Jamaica, and also redeemed the wife and children of this man.

In 1687 the greatest grief of his long

life came to him when his wife died. All his life she had been his greatest helper. It was she who looked after the household, and saved him from all worry about his money affairs, so that he might devote himself to his teaching and trans-"I shall go to her," he said, "but she shall not return to me," but he lived on three years longer and died at the age of eighty-six. "No missionary," one of his successors says, "who ever labored for the gospel, had a nobler zeal: no martyr who ever faced the flames had a more heroic spirit; no saint had a saintlier soul. His missionary spirit and earnestness were as wise as St. Paul's, his charity and sympathy as sweet as St. Francis d'Assisi's, and as years go on he becomes one of the most commanding figures among all the English Puritans who entered into the early life of America."

An Indian missionary, who had been ordained some years before John Eliot's death, tried to go on with the work among the Indians, but he had not the authority that a white man would have had among them, and he was not successful. John Eliot was almost alone among the settlers in his belief in the Indians. His son John, whom he had trained to take his place, died over twenty years before him, and no one had enough interest in the mission to carry it on. Gradually the Indians fell away, and in 1716 their church was closed. Another church has been built on the site where it stood, and close by a monument has been erected to this selfsacrificing missionary, who was one of the very few to claim justice for the Indians, and to seek to teach them how to take their place in the civilization of the white men among whom they had to live.

He saw very clearly that as long as they kept to their old ways of living it would be very hard for them to hold to the truths of Christianity, which he taught them. He believed that if they were to be really Christians, they must learn the ways of Christian civilization.

His efforts as a pioneer in education are overshadowed by his fame as a missionary, but the people of Roxbury do not forget that he never ceased to declare the need for education in the colony, and that the year before his death he gave seventy acres of land at Jamaica Plains to support a school.

THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 6171. 

## INDIANS OF THE WEST AND OF THE EAST



Father Marquette and Louis Joliet floated down the Wisconsin River into the Mississippi, June 17, 1673, and here we see them lost in wonder at the sight of the mighty stream. You can read the story of their voyage down the river, and of their return trip, in the text. This was the first real exploration of the course of the river, though it had been discovered long before.



King Philip, whose real name was Metacomet, was a chief of the Wampanoags, and plotted to kill all the whites in New England. War broke out in 1675, and raged for over a year. Philip was finally killed by an Indian in 1676. This conspiracy almost broke up the work which John Eliot had done among the Indians, as some 'praying Indians' could not resist the temptation to join Philip against the whites.

## ANADA'S RIVERS



One of the most beautiful rivers of Canada is the Kaministiquia. We show you here its more restless appearance, as it dashes over stones and apparently struggles to be free. Notice the different strata in the rocky banks through which the river has cut its way. The beautiful Falls of Kakabeka are on this river.



Here is the same river, though you can hardly believe it. This quiet and placid stream with the grain elevators along its banks and the steamers on its waters seems entirely different from the restless stream above. The town is Fort William, Ontario, which is a centre of the grain trade. Pictures copyright by H. C. White Co. 

#### The Book of CANADA



The Canadian Side, Niagara Falls

### THE GREAT LAKES AND THE ST. LAWRENCE

HISTORIANS tell
us that rivers
have a great influence
on the destiny of nations.
A writer of geographies has
lately called the St. Lawrence
a roadway into the heart of the
continent. Before we set out on
our journey down the pathway made
by this noble river, let us stop for a
moment, and think of the influence

moment, and think of the influence that it has had on the history of Canada.

Up this great and shining roadway came Cartier on his voyage of exploration. Champlain followed it. The farms and villages of the early settlers were built along its banks. La Salle made his way along it on his way to find the Mississippi, and it was the road by which the adventurers, who followed after him, traveled when they sought to bar the valley of the Mississippi from the English colonies in the East. If it had not been for this great highway, it may be that the history of this whole continent might have told a different tale.

# How the great lakes were made

Once on a time, you know, there was no river and there were no Great Lakes. All the northern part of the continent was covered with ice which Copyright, 1918, by M. Perry Mills.

Now if you look at your map, you will see that the centre of the whole continent is a great plain. But as you trace the courses of the rivers you will find that the southern portion of the plain is

tipped toward the south. In the centre there is a low height of land. The rivers to the north of this flow toward the north and east, while those on its southern side flow southward. If it were not for this height of land, it is probable that the water from most of the lakes would flow to the Mississippi and the St. Lawrence would not exist. It is strange to think that a little height of land, which was perhaps pushed up by a glacier, far back in the ages, could alter the history of the world.

In the glacial period—the time of cold—all the northern region was covered with ice, which, as it moved onward, scraped the sides of mountains bare, ground out basins, deepened valleys, and in other places raised the surface of vast tracts by overlaying the land with the drift of earth and rocks it carried. Ages passed, and the air became warm again. The ice melted, and in its place a great expanse of water re-

mained. But the water found outlets, as water will. Gradually the higher land was drained, but the deep basins held their water, and this was the origin of the chain of Great Lakes and the River St. Lawrence, which flows through them and carries their overflowing waters to the sea. We call them lakes; but really they are inland seas, and hold within their deep basins half the fresh water there is in the world.

#### WHERE THE ST. LAWRENCE REALLY BEGINS

We usually think of the St. Lawrence as rising in Lake Ontario. Really it rises in Lake Nipigon, north of Lake Superior, and flows down through all the lakes, though we call it by different names. The lakes are like the fountains, made in steps, that you sometimes see. The water overflows from one into the other, but the stream is continuous. The St. Lawrence with its tributaries drains over four hundred thousand square miles of territory, most of it in Canada.

On this trip, our starting place is at Fort William, at the head of Lake Superior, where we have come to meet a beautiful steam yacht that is to take us down through the Canadian waters of the lakes. Fort William was a headquarters of the Hudson's Bay Company, and every year the officials held high festival there. But the days of the Fur Company are gone. Wheat is king in Fort William, and huge elevators mark its power. The golden grain is gathered in these elevators from the prairie lands, and much of it is shipped by boats which go down the lakes, canals and river to Montreal.

We shall not see the wild and rocky northern shore of Lake Superior. pass out of the harbor, pass Thunder Cape and Isle Royale, and keep almost a straight course across the lake. At White Fish Bay we pass the lighthouse and find the entrance to the Sault Ste. Marie, where the overflowing ice-cold waters from Lake Superior plunge themselves down the rapids to reach the lower level of Lake Huron. The rapids are so dangerous that canals, of which we may read in other places, have been built to make a passage for the ships; but while our boat makes her slow way through the lock, we hire an Indian guide and his canoe and shoot the rapids, as the Indians, the early French, the course-debois, and many a hunter and trapper in long procession have done before us.

#### THE BEAUTIFUL REGION OF GEORGIAN BAY

After we have passed the canal at Sault Ste. Marie, which we remember means the Falls of St. Mary, we sail down the St. Mary's River, as our river is here called, into Lake Huron. We should like to pass down below the island of Mackinac into Lake Michigan, which is here surrounded by the state of Michigan. We want to see Green Bay, where La Salle landed, and the great city of Chicago, which has grown up on the site of Fort Dearborn, but our host tells us we must leave that for another time. Our captain turns the bow of our staunch little boat across Lake Huron, past Pelee Island, famous for its grapes, between Manitoulin and the mainland into Georgian Bay, one of the most beautiful stretches of water that the world holds. Islands meet the eye on every side; some of them are rocks, some of them little islands with a tree or two, thousands large enough for a summer cottage or a

camping place. North of Lake Huron, in the Sudbury

district, are the great nickel and copper mines, of which we have read on page 6002, and on Manitoulin Island there are copper mines, but our minds are filled with the beauty of the scene and we have little thought left to-day for natural resources. We take our leisurely way through the islands, and stop at the little town of Collingwood, where great freight ships are built. We stop at Owen Sound, then sail out again into Lake Huron, through the St. Clair River, and Lake, and the Detroit River into Lake Erie. Now we sail along the southern shore of the peninsula to Port Colborne. where we enter the Welland Canal, and enjoy the novel experience of steaming down its placid waters through fields and country villages to Lake Ontario. Once we have reached the lake, we leave our yacht, and take the train for a visit to the Falls of Niagara, those famous falls that the Iroquois called the "Thundering Water."

#### WHERE THE "THUNDERING WATER" COMES FROM

Let us think for a moment what this thundering water carries. Back of it are four of the Great Lakes, Erie, Huron, Michigan, and Superior. When the over-

# THE MARVELOUS RIVER



No part of the St. Lawrence is more beautiful than the section including the Thousand Isles. Some of the Islands, as you see, are only ledges of rock standing above the water, others are very large and on them are built the cottages of the summer residents. Some of these are really palaces.



In the text you are told of the excitement of running the rapids of the great river. Here is just the edge of a boat going down the Long Sault Rapids, one of the most dangerous of the whole series. The pilots are so skilful that an accident is almost unknown.

Pictures copyright by H. C. White Co.

flow from all these lakes enters the Niagara River, it flows quietly between its wide banks until it reaches the rapids a little way above the Falls. At the head of the rapids, the waters begin to hurry, hurry, hurry, as if in haste to make the adventurous leap beyond, and when they reach the brink of the chasm, down which they must roll to the lake, they leap forward into the abyss, a hundred and sixty feet below. We cannot tell what impresses us most, the hurrying water at the rapids, which we could watch for hours, or the sublime spectacle of the great mass of water as it leaps into the chasm below. From the foot of the precipice the water rushes down a steep incline between narrow banks, to the whirlpool, where it strikes against a jutting point of land and is sent back in a sweeping current to swirl round and round before it escapes. We follow down its steep banks, fascinated by the swirling waters that rush by far below our feet until at last they reach a gentle slope, and flow quietly down to meet the blue waters of Lake Ontario. The great water power from the Falls is used to work factories and run electric railways from Buffalo to Toronto.

# Kingston, the west point of canada

At Niagara-on-the-Lake, which we re-member was once called Newark, and was the first capital of Upper Canada, our yacht meets us, and we sail across the lake to Toronto. Passing by Burlington Beach, we keep within sight of the land, for there are many pleasant places along this shore. We make no stay at Toronto, for our vacation time is drawing to a close, and we have much to see, so we go on our way straight through the lake until we reach the city of Kingston. The city is beautifully situated where the St. Lawrence flows from Lake Ontario. Most of the buildings are of gray limestone, and so it is called the Limestone City. It is a quaint, attractive place, full of historic interest, for it was built on the site of Frontenac's fort, and was once the seat of the government of Can-The Military College, Canada's West Point, is here, and Queen's University ranks with Toronto University and McGill. The massive gray stone forts, the quaint Martello towers, and the imposing public buildings, all make the city very full of interest.

Opposite the city, the St. Lawrence leaves Lake Ontario. Seldom less than two miles in width, it is two and one-half miles wide where it issues from Lake Ontario, and with several expansions which are called lakes it becomes eighty miles in width where it ceases to be called a river. The influence of the tide is felt over five hundred miles from the gulf, while it is navigable for sea-going vessels to Montreal, eighty miles farther inland. Rapids prevent navigation above this point, but by means of canals, boats pass from Montreal to Lake Superior.

If inferior in breadth to the mighty Amazon, if lacking the length of the Mississippi, if missing the ancient castles of the Rhine, if wanting the lonely grandeur that overhangs the Congo, the majestic St. Lawrence has features as remarkable as any of these. It has its source in the largest body of fresh water upon the globe, and among all of the large rivers of the world, it is the only one whose volume is not sensibly affected by the elements. In rain or in sunshine, in spring floods or in summer droughts, the river seldom varies more than a foot in its rise and fall.

# THE THOUSAND

Where the great Laurentian chain of mountains, running from east to west across Canada, swings southward to enter New York, it drops a link as it were, and allows the last of the big lakes an outlet into the channel of the St. Lawrence, which moves sluggishly among the numerous islands, helping to form the most picturesque archipelago in the world. The actual number of islands in this Lake of the Thousand Isles is near two thousand, varying in size, shape and appearance from a small barren rock, projecting from the surface of the river. to larger ones ornamented by summer residences varying in style of architecture from the modest cottage of the camper to the magnificent castle of the millionaire; and finally islands of large area covered with many farms.

Leaving Kingston, we wind in and out among these charming islands to the American town of Clayton, noted as a summer resort. Below this thriving town, island after island studding the quiet waters rise into view, the finger-tips of the great mountain range.

On one of these larger isles is located the "Thousand Island Park," while a little below is the fashionable resort known as the "Saratoga of the St. Law-

rence," Alexandria Bay.

From Clayton to Chippewa Bay the river with its clustered isles is like a fairyland. Hundreds of islands lie across the course of the steamer, all differing in size, coast, coloring, and forming an intricacy of channels amid which only an experienced pilot can guide a boat. Now we are entering a narrow pass between cliff-like banks covered with moss and trailing creepers, then we open into a lake-like expansion, then again among winding courses, through clustering islands and round rocky points. Everywhere art has combined with nature to enliven the scene. Islands are dotted with cottages in all sorts of picturesque surroundings, some perched on rocky bluffs showing among the trees, others snugly resting on low-lying islands or nestling in beautiful coves along the mainland. During the summer season the grand illumination of the islands takes place on Wednesday and Saturday evenings, when the entire region is transformed into a fairyland which must be seen to be appreciated.

The last of the Thousand Islands are called "The Three Sisters." Scarcely have we emerged from the still lingering images of the beautiful island scenery when the spires and roofs of the Canadian town of Brockville come in view. This town, named after General Brock, is built on an elevation which ascends by successive ridges from the St. Lawrence. A few miles below, Ogdensburg on the American side and Prescott on the other, stand like sentinels long on duty.

#### THE RAPIDS OF THE ST. LAWRENCE

At Prescott we leave the yacht, which we send down through the canals, and change to a river steamer with large observation decks. after the last glimpse of Prescott fades in the distance we enter the Galops, the first of the series of rapids marking the downward flight of the waters. These are only a foretaste of what is to follow. We rapidly pass the picturesque Canadian towns of Cardinal and Iroquois. A little distance below Iroquois the Rapids du Platt swirl their dark green waters among a group of wooded islands. After 

shooting the du Platt, the steamer glides with increasing motion past a picturesque point named Woodlands, and in and among bolder shores on the north side of Croyles Island into sight of turbulent waters of the Long Sault with its snow-crested billows of raging waters. This, the greatest of the really remarkable rapids of the St. Lawrence, extends about nine miles down stream to Cornwall and is divided into channels by numerous beautifully wooded islands.

The "shooting of the rapids," as the descent by boat is called, is a most exciting experience. Navigation of the Long Sault requires exceptional nerve and precision in piloting as well as extra power to control the helm; hence the rudder is provided with a tiller besides the regular apparatus, while four men are kept at the wheel to ensure safe steering, and as a result of such precautions accidents are unknown.

The St. Lawrence expands below Cornwall, forming the beautiful Lake St. Francis, twenty-eight miles in length. Below the lake we enter the Coteau Rapids. These rapids, about two miles long, are very beautiful and have a very swift current. About seven miles further down we sweep past a small island where the trees almost dip into the hurrying stream, and rounding a sharp curve we enter the Cedar Rapids. On the left is a beautifully wooded island and on the right is Hell's Hole, the greatest commotion in the river from Kingston to the These rapids are very turbulent the passage is very exciting. and Scarcely has the boat left the Cedar Rapids before she enters the Split Rock Rapids, with many submerged boulders guarding the entry. One cannot restrain a shudder as the ship approaches these threatening rocks, but the skilful hand of the helmsman turns the boat aside and it passes by unharmed.

A short distance below are the Cascades, the last of this series of rapids, made conspicuous by white-crested waves which mount tumultuously from the dark green waters in a choppy, angry way. This group of four rapids following one another in close succession extends in

length about twelve miles.

Below the Cascades the river expands into Lake St. Louis. Its shores are among the beauty spots of the St. Lawrence. After issuing from the lake we

pass the town of Lachine, nine miles from Montreal. Just below the town the steamer glides into mid-stream, that moves with increasing speed, indicative of the coming rapids, which now appear in full view. And soon we enter the last of the St. Lawrence rapids, the Lachine. A moment more and we have completed the descent and ride in tranquillity on the quiet waters below. Passing the beautifully wooded shores of Nun's Island, we see the famous Victoria Jubilee Bridge.

Sweeping beneath the great bridge, we come in full view of the City of Montreal with its busy harbor, beautiful buildings of massive stone, stately churches and cathedrals, noted colleges, famous parks, and most of all, its royal mountain, lifting its imperial head seven hundred and forty feet above the din and noise of the street.

#### DOWN THE ST. LAWRENCE

Leaving Victoria Pier we first pass Longueuil, a village on the south bank. The first town of note is Sorel, at the mouth of the Richelieu River and fortyfive miles from Montreal. It stands on the site of the fort built by de Tracy in 1665 and was for many years the summer residence of the governors of Canada. About five miles further down, the river expands into a vast sheet of water, twenty-five miles long and nine miles broad, known as Lake St. Peter.

Passing the mouth of the St. Francis River, we arrive at the city of Three Rivers, midway between Montreal and Quebec. Continuing the journey, we pass St. Anne and the Jacques Cartier River, after which the land on the river banks begins to rise, presenting a bold and picturesque appearance as we near Quebec. the only walled town in North America. The mouth of the Chaudiere on the south next attracts our attention, and next the great cantilever bridge, of which you see a picture on page 33. As our little boat passes beneath the bridge we wonder at its size, and marvel that men could be found great enough to think of such a structure. Before us is the grand gateway of the St. Lawrence and on our left. crowning Cape Diamond, is the famous citadel of Quebec. This lofty fortress, which covers an enclosed area of forty acres, three hundred and sixty-five feet above the river, was built from plans

approved by the Duke of Wellington. Since the withdrawal of British troops in 1871, it has been garrisoned by Canadian soldiers. The old walls of the Upper Town still stand, but the city has spread far beyond them.

#### THE GRANDEUR OF THE SCENERY ON THE LOWER ST. LAWRENCE

Leaving Quebec, we pass the Isle of Orleans on the left, and near its eastern end Mt. St. Anne raises its head twentyseven hundred feet above the river, and a short distance below the end of the island Mount Tourmente, nearly two thousand feet in height, with its lonely lighthouse looms against the sky. pass Capes Burnt and Rouge and a short distance further on is Cape Grebaune, which towers twenty-two hundred feet above the steamer. A few miles eastward is Murray Bay, the favorite watering place of the Lower St. Lawrence. river here is fifteen miles broad and its waters are as salt as the ocean itself. Murray Bay, with the grand old Laurentian mountains behind and the river in front, furnishes a variety of scenery not often found in combination.

Some miles below Murray Bay the Pilgrims are seen. They consist of a remarkable group of rocks which are visible at a great distance; "the mirage" seems to dwell about them. reach Tadousac, at the mouth of the Saguenay River. This town was the first settlement made by the French on the St. Lawrence and was their principal fur-trading post. From this point the northern shore is rough and broken while along the southern there is an almost continuous chain of fishermen's hamlets, farmhouses, villages, marked by windmills, forests and green meadows, with here and there a silvery stream winding sluggishly down to the river. The St. Lawrence grows wider and wider until it has a width of eighty miles, when it is lost in the gulf of the same name.

No other river can boast of such a chain of inland seas along its course, or has such a wealth of picturesque islands. Its banks have seen the conflict of races for the mastery and the struggle of nations for the possession of a continent. We may well say that in its majestic course from lake to the broad ocean, the St. Lawrence offers to the traveler more of beauty and romance than any other river in the world.

THE NEXT STORY OF CANADA IS ON ANOTHER PAGE. 



This picture shows a freight boat coming down the St. Mary's River from Lake Superior to Lake Huron, on a calm summer evening. The river is very wide and is divided by islands, one of which you can see in the picture. It is the boundary line between the United States and Canada, and some of the islands belong to the one country, and some to the other. The scenery of the river is very beautiful.



This boat has just come down the same way as the boat shown above. Dreadful storms rage on the Great Lakes in the winter season, and after about the middle of November navigation is not safe. The brave men on this boat have just brought her down from Lake Superior in December, but you can tell from her icy coating what a struggle they have had. Many boats have been lost in storms on these inland seas.

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This picture gives us an idea of the freight that passes through the St. Mary's River. If the picture were large enough you could see another large boat in the distance. They hold a beautiful line as they steam through the channel, one following the other at a safe distance. This is the Michigan Channel of the river, as you may see from the coast guard station on the right. The men on duty report each boat that passes.



This picture is of the little Grenville Canal on the Montreal, Ottawa and Kingston route. It is on the Ottawa River and avoids the Long Sault Rapids. It is about 56 miles below the city of Ottawa, up to which point the River Ottawa affords unimpeded navigation. Only about 534 miles in length, it yet has five locks in its course, which overcome a total rise of 4334 feet. It varies from 50 to 80 feet in width.

The Book of STORIES



# THE LITTLE SPINNER AT THE WINDOW WHY THE FINE SHAWLS COME FROM SHETLAND

IONG ago, far away
in the Shetland
Islands, there once
lived a little lame girl
called Grete. Her home was
built on the shore of a voe, or
sea lake, that ran quite a distance
inland. It was built of rough stones,
and had only one window.

Grete of games.

The roof was covered with green sods, with big white daisies and other flowers growing on it; wreathed, too, with topes of seaweed, wound round stones, to prevent the sods from being blown off in high winds. There was no garden, but the ground was covered with white sand, full of pink and white and yellow shells, for the green waves curled at its edge only a little way off.

There was a fire of peat in the middle of its only room, and as there was no chimney the smoke had to find its own way out, so the walls looked black and dismal. Then, a calf or some lambs, or even some little pigs, often shared the fireside in cold weather, and there was scarcely any furniture, for Grete and her mother were very, very poor. But they had a spinning-wheel and spun the sheep's wool into yarn, and knitted thick stockings and clothes for the fishermen.

On a sunny summer day the little island looked like fairyland, with other fairy islands shining in the distance, but Grete, who would sit at the window with her spinning-wheel and

look out upon the island, knew it in winter storms as well, and was afraid then of the great sea which had caused her father's death, and her own lameness. For poor little Grete could not run about and join in games. Often, for days, she had to lie on her back, bearing a cruel pain that sometimes brought tears to her eyes.

One day when the sea roared, and the spray struck against the small window, dimming it so that it was impossible to see out of it, Grete, whose leg ached badly, was lying on the bed by the window.

For once the girl's busy fingers were idle, as she watched a big spider who was beginning to spin his web in the corner of the window. When she first noticed him he was running a line from one corner to the other, then he went back to the middle, and made a line fast to another corner, and after making a sort of wheel with a lot of spokes all joining in the middle, he started to work rounds. How clever he was! And he went round so fast that he made her feel quite giddy.

The spider somehow seemed to grow bigger and bigger, and his web covered more and more of the window, and was getting as white as snow. Slowly he seemed to change, until he was no longer a spider, but a trow, a queer little man with a face like a rosy,

dried-up apple. And the trow nodded his head at her, and said in a tiny voice: "Watch me, Grete, and you will know how to knit."

Yes, when she looked harder it was wool he was spinning, white and soft and fine; and the web—no, the knitting, of course, grew apace under his quick fingers. Why, it seemed quite easy to see how such beautiful patterns could be made. She was learning how to do it fast, and the little trow turned every now and then, and smiled and nodded. The door opened. So did Grete's eyes. And now there was only a real spider, with an everyday sort of web, and, it was very odd, he was no longer at work, but was

bundles, so that she might start carding and spinning it at once. It would not spin fine enough to please her the first day; no, nor the second day, but she persevered until she was satisfied; and as her wheel went whirring round, she fancied she heard the trow's voice saying: "Try again, Grete. Try again." She thought he was helping her all the time, for surely never had wool been spun of such fineness and evenness before. Then, too, the spider's web was there; and she had only to look at the window, and the pattern seemed to stand out clearly again.

Before long, the neighbors came to see the wonderful shawl that looked like lace. The fame of it even reached a great lady



A SHETLAND WOMAN KNITTING A SHAWL BY THE WAYSIDE

This picture is from a photograph by Charles Reid, Wishaw.

all tucked up into a ball against the ledge because he was too disgusted at the little beads of spray that were hanging on his web to go on with making it.

"Eh, mother," Grete cried, "you have frightened away the trow just as I was getting on so grandly with learning the

fine knitting."

"What has the wee wife been dreaming about?" said her mother. "Oh, I am tired!" And she sat down, not noticing in her fatigue that Grete did not answer. The little girl could not explain just then, and felt she wanted to think it over before she forgot the wonderful pattern.

She dreamed about it all night, and next morning her mother helped her to pick out all the whitest wool from the in Lerwick, who sent a messenger to bring it for her to see. Grete was sorry to part with her treasure, but her mother said it was a great honor for them, so it was borne away to Lerwick.

Then, one fine day, Grete saw a white sail making for the voe. Soon a lady was sitting beside her, and asking her about her work so kindly that she quite forgot to be frightened. And when the lady left she gave Grete a gold piece for the shawl, the first gold piece that had ever been seen on the island. Everybody wanted to learn how to get gold pieces, and Grete was delighted to teach them. So better days came, not only for Grete and her mother, not only for their own little island, but for all the islands near.

## THE TALE OF JENNY MARTIN

JENNY MARTIN was the daughter of a poor woodcutter in the New Forest, in the south of England. One midsummer eve she was wandering about the forest, gathering flowers, when she saw a little white mouse sleeping on some moss beneath a great oak-tree.

"Oh, what a pretty white mouse!" said Jenny. "I will take it home."

She took the mouse in her hands, and

it woke up and said:

"No, Jenny, do not take me to your father's cottage, or the cat may get at me and kill me. Leave me here. I am the Queen of the Mice, and I will reward you for your kindness."

"What will you give me, then?" said

Jenny.

"Anything that you like to ask for," said the little white mouse. "You have only to come to this tree and tap three times, and I will grant you what you wish."

"Well, to begin with," said Jenny, "I should like my father's cottage to be changed into a pretty farmhouse."

"That I have done," said the mouse,

"as you will see when you return home."

Jenny put the little white mouse back on the moss beneath the oak-tree, and ran home. In the place of the small, shabby cottage which she had left a few

hours before, there stood a pretty farmhouse with an orchard full of large fruittrees, a stable with three horses, and a cow-shed with thirty cows; and there were plenty of ducks, geese, and chickens in the yard. Oh, how happy Jenny was, and how amazed was her father, the poor wood-

cutter, when he saw what had occurred!

A manly young farmer who had always been in love with Jenny came that evening to ask her to marry him. But Jenny was now proud and disdainful, and she dismissed her old sweetheart. She began to feel sorry that she had not asked the Queen of the Mice for something more than a farmhouse. So she went to the tree, tapped three times, and said:

"Little white mouse! Little white mouse! Jenny is tapping outside your house."

The little mouse peeped out and said:
"Well, what do you want now, Jenny?"
"The farm is too small and dirty,"
said the girl. "I should like a fine,
handsomely furnished manor-house with
a crowd of servants, a coffer full of gold,
and a heap of rich, beautiful dresses."

"Return home," said the mouse, "and there you will find all that you desire."

Jenny thus became a rich young lady, and as she was pretty, as well as rich, the squire's son came to woo her, and all the neighbors looked forward to their marriage. But no marriage took place, for Jenny grew proud and disdainful.

"No squire's son for me!" she said.
"I will get a castle and marry a lord."

So she went to the oak-tree and tapped three times and said:

"Little white mouse! Little white mouse! Jenny is tapping outside your house."

"Dear me! Dear me! Whatever do you want now?"

"I want to be a lady," said Jenny,

"and live in a great castle."

"Very well," said the little white mouse. "Go home, and you will find all that you desire."

So Jenny became a great lady, and a duke came and made a proposal of marriage to her. But Jenny was still proud and disdainful.

"A duchess?" she said. "I do not care to be a mere duchess; I must be a

queen."

When she asked the little white mouse to change her castle into a royal palace, and make her a queen, the little white mouse said:

"Take care, Jenny, take care! You are getting very proud and disdainful. But go home, and, for the last time, you will there find all that you desire."

That very day the young and handsome King of England came to the New Forest to hunt.

As he was chasing the deer, he saw a magnificent palace gleaming between the trees. He rode up to look at it just as Jenny returned from her visit to the little white mouse. The woodcutter's daughter was now clad in rich, trailing robes of marvelous colours. She no longer appeared merely a pretty girl, but a very stately and beautiful lady. The king fell in love with her at first sight, and asked her to be his queen.

Jenny was at last pleased and contented with her wonderful good fortune. As she watched the preparation which was being made for her marriage with the king, she thought there was nothing left on earth for her to desire. Every day her royal lover came to her palace with

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splendid gifts; she had great ladies to wait upon her, and great lords to attend to her orders, and triumphal arches connected by festoons of foliage and flowers were erected all along the road from the New Forest to the City of Westminster, where the wedding was to take place. But as Jenny was about to enter into the royal state carriage she said to the king:

"I have forgotten something. Wait a minute while I go into the forest."

The vast crowd of courtiers and knights and men-at-arms made way for her, and,

become a sweeter and more dutiful girl before you get one. Go home, and profit by the lesson that is awaiting you there."

Jenny went back through the forest in a state of strange [fear, for, as she looked at her dress, she saw that it had changed from a queenly raiment into the poor, plain attire of a peasant girl. The palace had disappeared, and the king and the multitude of lords and great ladies and glittering soldiers were gone. Only her father's humble cottage now stood beneath the trees, and, strange to say, when the woodcutter came home late that



THE KING FELL IN LOVE WITH JENNY AT FIRST SIGHT, AND ASKED HER TO BE HIS QUEEN

pulling up her long robe, she ran to the oak-tree, and tapped impatiently three times, and said in a commanding voice: "Little white mouse! Little white mouse!

The Queen of England has come to your house."

"Well, Jenny Martin," said the little white mouse in a severe tone, "are you still not satisfied, with all the wonderful things that I've done for you?"

"I want only one thing more," said Jenny. "When I am married I want my husband to give way to me in everything. Then I shall be ruler of England."

"You have no husband yet," said the white mouse, "and you will have to

evening to supper, he spoke as though nothing marvelous had ever occurred.

"Was it only a dream?" Jenny kept saying to herself when she found that none of the neighbors laughed at her.

No doubt the kindly little mouse made it all appear to be only a dream in order to lighten Jenny's punishment. But Jenny learned the lesson. She became a sweet, contented, industrious girl, and the manly young farmer who had always loved her came and married her, and she lived more happily with him on that quiet little farm than she would ever have done on a high and glittering throne in a palace surrounded by courtiers.

## EYES FRONT

BOB FRASER had a contract to supply a Coeur d'Alene silver mine in Idaho with cord wood that winter. At first, he tried living in camp and journeying out to the wooded slopes of the Sawtooth Mountains every morning, but the winter days were short and time very precious, so he built himself a log shack in the valley immediately below where he was cutting. Thence it was an easy matter for a good skier to journey every day to his work, and when he needed stores he could go into the mining village.

The snow lay deep and firmly packed on the steep slopes and Bob enjoyed his skiing in the crisp air. Each night as he finished work he wiped the blade of his axe and stuck it into the trunk of a tree ready for use the next morning. Because of the severity of the winter, game was scarce: the deer and elk had gone into lower country, and the few predatory animals of the region were very hungry the only time when they are likely to be dangerous to man. Bob, as a good woodsman, was aware of this, but as the days passed and he saw and heard nothing he relaxed his vigilance and left his rifle in

One morning, after an invigorating climb and run, he reached the place where he had left his axe the night before. As he topped the rise he saw a furry form between him and the tree where it stuck. A mountain lion-and a big one, but lean and hungry looking. Bob gave a shout and advanced, expecting the animal would retire as soon as he saw him. But it stayed, crouching—its yellow eyes blazing—and Bob saw that it was slowly lashing its tail, sure sign that it meant to spring. He measured the distance between himself and his axe, and in the brief time that he looked away the cougar crept nearer. It became evident that he could not afford to take his eyes off those blazing yellow ones. The rifle and the shack were way down the hill, and there was no way for the woodsman to reach them but by backing in his trail. It was his one chance, however, and he determined to risk it. He slowly backed, and at his first movement the muscles on the creature's shoulders rippled and he crept slowly after the man. Step by step and yard by yard, <del>~~~~</del>

the cougar creeping after him, Bob backed along the trail as it twisted and turned on its downward grade. None but an expert could have performed such a feat, and Bob had not even a ski-pole to help him. Each time before shifting his weight he tested the tenuous grip of the skis upon the trail. He dared not look behind him, he could not even look down. He tried it once, and the lion gained several feet, during the few seconds his eyes were turned away.

As he backed yard by yard nearer the cabin, through wooded hollows and over little ridges, such thoughts as he could spare from his immediate difficulties and the compelling glare of those wicked eyes, were busy with a new problem. around his cabin the snow lay deep, ten feet and more. He had kept a clear cutting immediately round the cabin and a path through to the creek. But there was only one place where he had piled up steps against the snow wall. If he missed the steps, the cougar could spring full upon him.

When he knew that he was very close to the cabin he shot one flashing glance over his shoulder. In that time the cougar, getting anxious lest his prey escape him, by a short bound placed himself within easy leaping distance. Quickly Bob shuffled his feet out of the ski straps and then with desperate impetus flung himself down the snow slope, and fell through the door of the cabin. Immediately, he was on his feet, his back to the door to meet the heavy impact of the cougar's spring. There was a strong bolt, and exerting all his strength, he shot it, and reached for his rifle. The cougar crept around the cabin to find another Bob had guessed that he would do this, and, as the beast passed the back, he fired through the window. It was only a ten yard range and the ball struck fair between the eyes. One leap into the air, one tremor through the lithe form and the beast lay still, its days of slow starvation ended. The hide was seven feet long when Bob had stretched and cured it. It would have brought him a good price but he refused to sell it. He never went to or from his work again without his axe or his rifle on his shoulder.

## WHEN BETTY LOST HER WAY

BETTY at first thought she was still dreaming. She had cried herself to sleep among the ferns under an oak-tree, but the sound of music had awakened her.

She wiped the tears from her eyes with her pinafore, so that she could see more clearly. The moon had risen, white and large, behind the great pines in the middle of the wood, and there, in the moonshine, was a band of little gray mice, dancing and singing round the stump of a tree.

On the tree-stump stood a funny elf with a solemn face, playing music on a big fiddle, and three pretty fairies sat on the grass, watching the dancers.

Betty crept nearer and nearer, until she was able to hear that the mice were singing:

"All the corn is a golden brown.
Harvest home! Get the harvest home! Apple and nut are tumbling down, As we sing harvest home!

"Hurry up, farmer, and cut the wheat. Harvest home! Get the harvest home! Thresh out the grain for us to eat, As we sing harvest home!

"'Corn,' says the farmer, 'is mv own consarn.

Harvest home! Get the harvest home! But the wise little mouse knows the way to

As we sing harvest home!"

Then a mouse saw Betty, and gave a shriek, and away scuttled all the dancers. But the tallest of the fairies—a beautiful lady with lovely lilac wings and long, flowing lilac robes—called the mice around her, and looked sternly at the little girl.

"How dare you disturb my mice when they are holding their harvest festival!" she cried. "How is it you are not in bed, Betty, when all the world is fast asleep?"

"Please, fairy, it's my birthday," said Betty, beginning to cry. "We were having a party at the farm, and some of the children were late. Daddy went to fetch them, and I-and I-"

"Never mind, Betty," said the Fairy Queen, taking the little girl in her arms. "You shall have a special birthday party here in the woods. Play the dance to fairyland, Grimiken."

Looking more solemn than ever, the elf

put his chin on the top of his big fiddle, and waved his bow three times in the air, and began to play a swift, merry dance. There was a rustle of wings, and for a moment the moon was hid by lovely fairy forms. Then down they flew to the tree-stump and clustered round their

"Prepare a birthday feast for Betty of Westermain Farm!" cried the Fairy Oueen. "She is five years old this very day, and has lost herself in our woods."

Away went all the fairies, and the little mice began to dance with joy. Holding each other's front paws, they circled round Betty, singing:

"Pretty little Betty is kind and sweet. Pretty little Betty will do no harm To the tiny gray mice with nimble feet
That live with her on her father's farm."

"Do they really?" said Betty.

"Yes," replied the Fairy Queen. there are only thirty-two of them, so they don't take much of your father's corn."

By this time the banquet had been prepared, and a rich and glorious banquet it was—hundreds of new sorts of cakes, and puddings and tarts, and sweets of every kind. Everything was served up on gold plates, and a bright-winged fairy brought Betty a golden goblet, and poured out a delicious fairy drink for her. Rows of tables, on which was placed all manner of exquisite fruit, were set on the grass. and a band of goblins played lilting tunes during the feast.

At last the feast was over, and the dancing began. The Fairy Oueen took Betty as partner, and it was wonderful how quickly the little girl learned all the steps of the wild and maddening fairv dances. Round and round they whirled on the greensward. Suddenly a cock crowed in Westermain Farm, on the northern side of the wood.

"Quick, we have not a moment to lose!" cried the Fairy Queen, touching

Betty with a little wand.

Betty swayed and fell asleep in the Fairy Queen's arms. When she woke up she found herself lying, with her clothes on, in her own little bed in the farm. Her father and mother, who had been searching for her all night, still think she managed to find her own way home. 

#### STORIES TOLD IN INDIA 3,000 YEARS AGO

These little stories were told to the boys and girls of India a thousand years before Jesus Christ was born, but they are still as interesting as when they were originally told to the children of long ago. They were first told in Sanskrit, the sacred language of the people of India.

#### THE TIGER AND THE TRAVELER

TIGER who was too old to go hunting for his food lay hidden in the jungle, crying to the passers-by to come and receive a handsome bangle for nothing. A covetous fellow, hearing the invitation, asked to see the bangle, and the tiger pushed one of his paws a little way through the grass and showed the stripe upon it. Thereupon the covetous man started to get it, but soon found himself up to his waist in a pool of mud.

"One moment," said the tiger, "and

I will come and help you out.

And, going into the pool, he seized the man and made a hearty meal of him.

Covetousness often leads a man into trouble and disaster.

#### THE APE AND THE WEDGE

N Behar, a great temple was being built, and a carpenter who had partly sawed through a huge beam of wood went away to dinner, leaving a wedge in the beam to prevent the two sawed parts from springing together. While the man was away, a party of monkeys came along, and one of these, thinking to appear clever before his companions, said:

"See me take the wedge out of this beam and give the carpenter more work

to do!"

Then he jumped down into the opening in the beam, and tugged away at the wedge, until at last it came out, and at the same moment the sections of the beam sprang together and held the monkey fast until the carpenter returned.

Those who make trouble for others often

fall into it themselves.

#### THE BRAHMAN AND THE GOAT

A BRAHMAN who lived in the forest had been to the town to buy a goat for sacrifice, and was returning with it on his shoulders, when he was seen by three rogues, who determined to obtain his goat.

They ran ahead of him and seated themselves at the foot of three different trees.

"Why do you carry that dog, master?" said the first, with well-feigned surprise. The dog, it must be understood, is regarded as an unclean animal by the Brahmans.

"Dog!" was the indignant reply.

"It is no dog at all, but a goat."

The Brahman came to the second rogue, who made the same remark. This time the Brahman took the goat from his shoulder, looked well at it, and, replacing it, proceeded on his journey.

But when still a third man said the goat was a dog, the Brahman doubted the evidence of his own eyes, threw down the animal, washed himself from the pollution of the supposed dog, and hurried off home. The three rogues then seized their prey, and cooked and ate it.

Be on your guard against rogues.

THE BRAHMAN AND THE POTS BRAHMAN went to rest in a potter's workshop, taking with him his staff. and a little dish containing some meal that had been given to him. As he lay upon the ground he began to meditate.

"If I sell this meal," he said, "I can buy some of these pots with the proceeds. Then I can sell those and make a profit, and with the money I can buy clothes to sell. And so, in time, I shall be worth many thousands of rupees. Then I shall buy a house and marry, and if my wives quarrel I shall take up my stick-like this, and punish them-thus."

As he thought these things he waved his staff, smashed his own dish, upset the meal in the dirt and dust, and broke many of the potter's vessels. So ended his wonderful castles built in the air.

Do not count your chickens before they are hatched.

THE LION AND THE CAT

AWAY in the mountains of the north of India lived a lion, who was much annoved by a small mouse that crept out while he was asleep and gnawed his mane. At last the lion went to the village and obtained a cat, promising to treat it royally if it would keep the mouse away.

This the cat did for a time, and the lion always gave his protector the best of food. But one day, when the mouse was very hungry, it came out and was killed by the cat. The lion soon found that there was no longer any mouse to annoy him, and he at once ceased supplying the cat with food, and the cat had to return to the village and live as poorly as it had done before.

The great are often selfish in their patronage of those who help them.

## THREE

PEASANT was one day traveling to A PEASANT was one day through market upon his donkey, taking with him a goat that followed behind, and was attached by a rope to the saddle of the ass. As the man went along the road, three cunning robbers saw him.

"Here comes a fine fish for our net," said one. "I am going to take his goat without the simple fellow knowing it."

"And I," said another of the thieves, "will do something cleverer than that. I will take his donkey with his permission, and he shall thank me sincerely for doing so."

"Ah! said the third robber. will beat you both, for I will have the very coat off his back; and while he takes it off to give to me, he shall call me his friend and benefactor."

"Come along," said all three at once.

The first robber went up quietly behind the unsuspecting peasant, removed a bell that was tied to the goat's neck and fastened it to the donkey's tail, so that it might continue to tinkle the man might think his goat was still following. The thief then loosed rope from goat's neck

and made off with the animal. After a time the peasant happened to look round, and was amazed to find that, though the bell still tinkled, the goat had disappeared. He ran hither and thither, but could see no trace of his goat. Tust then the second robber approached, and, on being questioned, replied:

"I saw a man running in that direction with a goat, and I'll be bound to say it was yours. I will mind your donkey, if you like, while you give chase."

The peasant thanked the thief profusely and ran off, leaving his donkey with the rascal, who soon rode away upon its back.

The poor countryman, of course, found no trace of his goat, and soon returned, only to discover that his ass had disappeared too. He was very angry with the men who had robbed him, and not less angry with himself for being duped.

"Well," said he, "the next man who tries to impose upon me will have to be very clever. I am on my guard now."

At this moment he heard a series of dismal groans, and, going to the spot whence they proceeded, he found a man weeping bitterly and sitting upon the ground near a well, in the greatest distress. It was the third robber.

"Why are you making this noise?" said the peasant. "Do you think you are the only man in trouble? I am on my way to market, and have just been robbed of both goat and donkey."

"Pooh!" replied the other. "That is nothing. I was carrying a casket of the richest jewels, and was resting by

> this well, when by accident I let the treasure fall in, and there it lies at the bottom quite out of reach."

The · peasant looked into the well, but it was too dark to see anything at all.

"Why do you not dive in and recover your treas-ure?" said he.

"Alas!"

groaning, "I cannot swim or dive; but if only I could find someone who would dive in for me and get the casket, I would reward him with half its contents."

"Would you, indeed?" said the peasant. "Then I will dive in and get it for you."

The groaning man appeared delighted. "You shall certainly have half of the jewels," he said, whereupon the peasant thanked him as the benefactor who would more than replace the loss of the goat and the ass.

Taking off his coat, the peasant dived in, but, of course, there was no treasure in the well; and when, after hunting for a long time in the water, he came out greatly disappointed, to say that he was quite unable to find the treasure, he found that the third robber had made off with his coat.



THE FIRST ROBBER TIED THE BELL TO THE TAIL plied the robber,

THE NEXT STORIES ARE ON PAGE 6191. 

# The Book of THE UNITED STATES



A Scout is a Cheerful Companion.

# BOY SCOUTS OF AMERICA

A BOY is the most loyal being in the world. Undirected, his excess of animal spirits and sociability sometimes drive him into undesirable lines. He becomes the member of a "crowd" or "gang" and his very staunchness and unswerving loyalty to boyhood's unwritten law, that requires him to stick by a comrade even when it leads him into a row, becomes a peril to the community.

Yet this sense of clannishness and high spirits, when properly directed, becomes a firm foundation for vigor and manliness of character. The energy which often results in lawlessness, perhaps in injury to members of an opposing "club," perhaps in destruction to property, can be turned into a force which helps the neighborhood in which boys live, instead of keeping it in constant uproar.

Workers with boys have learned this fact. The day of suppression and of repression is past. Expression—wholesome, intelligent expression—is the motto of the age. If you would make men you must teach the boys to make themselves.

# THE SONS OF DANIEL BOONE—

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Many years ago, Dan Beard, the artist, was walking down a street in Copyright, 1011, 1018, by M. Perry Mills.

New York City when he was struck by the fact that nine-tenths of the boys he saw did not know how to properly spin a top or to play marbles skilfully. He investigated further and found that practically none knew how to make a kite that would fly or a

balloon that would ascend.

"Our boys must be taught how to use their brains and fingers," he thought, and he set out to remedy the evil by writing books to teach boys handicraft and woodcraft. Later he organized out-of-door societies under the name of "The Sons of Daniel Boone," which was later changed to the "Boy Pioneers of America"; and so the germ of the Scout idea was set adrift in our country.

# THE WOODCRAFT INDIANS

In the meanwhile, Ernest Thompson-Seton, author and illustrator of such well-known nature books as "Wild Animals I have Known" and "The Autobiography of a Grizzly," was working out a similar idea along independent lines. Greatly impressed by the number of "flat-chested cigarette smokers with shaky nerves and doubtful vitality" that he found among our boys, he determined to counteract this degeneracy by substituting out-of-

door clubs and athletics for tobacco and alcohol.

#### THE "WILD CAT BAND" OF SETON INDIANS

He began his boy work in 1808. In 1002 he had several woodcraft societies going, but it was not until 1903, when he paid a visit to a friend in New England, that his real movement was set on foot. His friend had purchased several hundred acres of abandoned land, and was turning it into a beautiful country estate. Mr. Seton found that the neighborhood boys deeply resented the intrusion of a stranger on what they considered their property and were doing all in their power to drive him out of the place. They destroyed fences, pelted sign-boards until they were tipsy, and covered the gates of the park with hideous paintings. Mr. thought about the matter. He had his theories upon boy nature. With his friend's permission he gathered together a lot of tents, canoes and food, and made a camp on the shores of the little lake in the park. Then he quietly invited the boys of the near-by village to become his friend's guests for a few days' camping. They responded—at first half suspiciously and then with a turbulent outburst of animal spirits that made Mr. Seton's heart sink with inward misgiving. But he let them work off their excess of vitality, and after stuffing them with a dinner such as they had never had before, he gathered them around the campfire, and told them thrilling stories of heroism and bravery; ending all with the tale of Uncas, the Last of the Mohicans.

Then in the breathless pause that followed, he remarked, reflectively, "Say, fellows, how are we going to do this camping out, just tumble around any old way, or real Indian fashion?"

"Oh, Injun, bet your life!" came the

enthusiastic response.

Tactfully bringing all his knowledge of boy nature to bear on the task before him, Mr. Seton led them on step by step until that very night he accomplished his purpose and the "Wild Cat Band" of Woodcraft Indians was formed. idea worked splendidly, for the erstwhile bandits of his friend's park slowly grew into a guard of staunch supporters. Moreover they were the nucleus of many societies of boys that formed in tribes under the name of the "Seton Indians."

Mr. Seton's chief and most valuable

contribution to the scout movement consisted in the substitution of the honor idea for the competitive system, which by urging boys on beyond their strength had worked much harm in athletics.

#### THE BOY SCOUTS OF GREAT BRITAIN ARE ORGANIZED

In 1904, Mr. Seton went to England to give public and private addresses upon woodcraft for boys. In 1906, he was joined in the work by Lieutenant-General Baden-Powell of the British Army. General Baden-Powell remembered how in the siege of Mafeking in the Boer War, when all the men had been needed on the firing line, the boys had been formed into little bands of messengers and had carried dispatches from fort to fort, and when the war was over had proudly received their medals with the grown-up soldiers. General Baden-Powell believed that the boys could be used successfully in times of peace as well as in war. He took Mr. Beard's Scout idea and combined it with Mr. Seton's Woodcraft Indian plan and in 1908 he set on foot the boy scout movement of Great Britain.

General Powell gathered together a handful of English boys in Surrey. He gave them a little talk, such as had been given to the boy scouts of Mafeking, he put them in uniform and drilled them a little. Then he set them to playing at Indians and Knights of King Arthur, publishing a little booklet entitled Scouting for Boys. The idea spread until now in Great Britain boy scouts can be seen everywhere—"in the slums of East London, in the loneliest country parishes, in towns and hamlets from Land's End to John O'Groat's."

THE IDEA OF SERVICE HELD UP TO THE SCOUT

"Whenever anything happens-when there is a railway accident, a horse runs away, a house catches fire, or a man falls in the river, boy scouts seem to appear on the scene as if by magic, to make themselves useful in any and every way. How useful it may be to have on hand a trained and disciplined force of quick, intelligent boys in every emergency was seen at the time of a terrible railway accident on the London to Brighton railway. The local scouts, who were playing football, when they heard of the accident, rushed to the scene with their ambulance stretcher and for many hours calmly and promptly performed noble and terrible 

# BOY SCOUTS ON THE ROAD AND IN CAMP



This picture shows a troop of Boy Scouts on a hike to its camping grounds with tent and supplies in the trek cart. The other scouts on bicycles and on foot bring up the rear. Such a troop consists of twenty-four to thirty-two scouts, divided into three or four patrols of eight scouts each, each having its own leader, and the whole troop being under an adult scoutmaster with one or two assistants over eighteen years old.



This picture shows a kitchen squad at a scout camp and rally. Each first-class scout is able to prepare a meal in a manner that is often of great assistance to Mother. There is one troop that can break ground at a new camping place and have tents up and fire built and everything in order, and can produce a pan of smoking popovers within twenty-eight minutes of the arrival of the troop on the camping ground.

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duties of rescue among the killed and wounded, giving most valuable help to doctors, public and railway servants.

It is this idea of service—of doing something for somebody every daywhich was added to the scout idea by General Baden-Powell, and which immediately brought the movement to the attention of boy workers and has done so much to give it wide popularity.

#### THE BOY SCOUTS OF AMERICA

In America the Scout movement was not legally incorporated until February 8, 1910. Since then it has progressed rapidly until now there are hundreds of thousands of boy scouts in the United States, with many thousand leaders of troops called Scout Masters. Bands of boy scouts can be found in every state in the Union, in Panama, in Cuba, in Hawaii, in the Philippines. The movement swept over the country with an enthusiasm and impetus even greater than in England. In fact, as General Baden-Powell stated at a dinner given him at the Waldorf Astoria, the vast stretches of territory, woods and streams-ideal camping grounds—give the movement a greater future in America than even England can ever hope for. Yet, wherever the movement spreads, it is "the magician's wand that turns boys into upright, honorable, chivalrous, kindly, self-reliant, useful and patriotic men."

These words were spoken several years ago, and since that time, the boy scouts have proved again and again what fine work well-organized, disciplined bands of boys can do. They have not in this country been called upon to patrol roads and guard bridges, as they have in England, but they have done other things of equal value. Their work, for instance, in promoting the Liberty Loans has been almost beyond praise. They have been instrumental in gaining very large sums in subscriptions for the loan. The modest, manly bearing of the boys who did the work, and their eagerness to give their playtime to patriotic service, showed the value of their scout training.

In the summer of 1916, when it was seen that large supplies of food were needed in Europe, many boy scouts devoted a large part of their vacation to gardening, to picking berries and other fruit, and in other ways aided in the production and preservation of food.

#### THE SCOUT LAW, WHICH EVERY ONE MUST KNOW

On the Scout Law, which every boy must know by heart before he can become even a tenderfoot—the lowest grade of scout—hangs the whole glory of the scout

The Scout Law in its present form savs:

#### A Scout is trustworthy.

A scout's honor is to be trusted. If he were to violate his honor by telling a lie, or by cheating, or by not doing exactly a given task, when trusted on his honor, he may be directed to hand over his scout badge.

#### 2. A Scout is loyal.

He is loyal to all to whom loyalty is due: his scout leader, his home, and parents and country.

#### 3. A Scout is helpful.

He must be prepared at any time to save life, help injured persons, and share the home duties. He must do at least one good turn to somebody every day.

#### 4. A Scout is friendly.

He is a friend to all and a brother to every other scout.

#### 5. A Scout is courteous.

He is polite to all, especially to women. children, old people and the weak and helpless. He must not take pay for being helpful or courteous.

#### 6. A Scout is kind.

He is a friend to animals. He will not kill nor hurt any living creature needlessly, but will strive to save and protect all harmless life.

#### 7. A Scout is obedient.

He obeys his parents, scout master, patrol leader, and all other duly constituted authorities.

#### 8. A Scout is cheerful.

He smiles whenever he can. obedience to orders is prompt and cheery. He never shirks nor grumbles at hardships.

#### 9. A Scout is thrifty.

He does not wantonly destroy property. He works faithfully, wastes nothing, and makes the best use of his opportunities. He saves his money so that he may pay his own way, be generous to 

## MAKING AND BREAKING CAMP



The three hundred thousand and more members of the Boy Scouts of America try each year to have a few weeks of life outdoors, where they learn many practical things—such as first aid and life saving, cooking, swimming, a knowledge of animals and trees and flowers and the stars, and, best of all, the spirit of self-reliance. Here we see the scouts ready to make camp, and doing quick work on their tents.



In this picture the scouts are striking their tent after a camp at their summer farm. Scouting teaches boys the value of team work, and does not permit of shirking. Each scout must pass certain tests in practical knowledge and be ready at all times to do his part in the application of it. The boys in camp are taught to guard their health carefully, and the scout camp is always marked by careful scouting arrangements.

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those in need, and helpful to worthy objects.

He may work for pay, but must not receive tips for courtesies or good turns.

to. A Scout is brave.

He has the courage to face danger in spite of fear, and to stand up for the right against the coaxings of friends or the jeers or threats of enemies, and defeat does not down him.

II. A Scout is clean.

He keeps clean in body and thought, stands for clean speech, clean sport, clean habits, and travels with a clean crowd.

12. A Scout is reverent.

He is reverent toward God. He is faithful in his religious duties, and respects the convictions of others in matters of custom and religion.

#### THE SCOUT OATH PROMISES DUTY TO GOD AND COUNTRY

Before he becomes a scout a boy must promise:

On my honor I will do my best-

- I. To do my duty to God and my country, and to obey the scout law;
- 2. To help other people at all times;
- 3. To keep myself physically strong, mentally awake, and morally straight.

And he raises his right hand level with his shoulder, palm to the front, thumb resting on the nail of the little finger and the other three fingers pointing upward, to make the Scout Salute.

Before the became a tenderfoot he was taught the meaning of the scout oath. how to make sailors' knots, and learned the composition of the national flag and the right way to fly it. Once he has passed his test as a tenderfoot and has assumed the picturesque uniform for which his boy heart has been yearning, there are other interesting duties into which he is initiated. He learns first to give aid to the injured, to signal by means of the Morse alphabet or semaphore; to run half a mile in twelve minutes at scout's pace; to use properly knife or hatchet; to lay and light a fire in the open with not more than two matches; to cook a quarter of a pound of meat and two potatoes without cooking utensils; earn and deposit at least one dollar in a public bank; and to know the sixteen points of the compass. Furthermore to

qualify as a second-class scout he must be able to track half a mile in twentyfive minutes or to describe the contents of a store window from memory. Before he can become a first-class scout there are other heights of scoutcraft to climb, all full of fascination to an active, healthyminded boy.

And so the boys, bit by bit, learn endurance, self-reliance and self-control; they learn the secrets of the woods and fields and become possessed with an earnest, manly desire to be of service to some fellow human being every day. They are given a purpose in life.

AIM OF THE MOVEMENT—TO MAKE MANLY, USEFUL CITIZENS

The Boy Scout movement is not a military organization in any sense of the word—neither is it a church movement. "A scout's religion is his own private business," Mr. Beard said in an interview which he very kindly granted to the writer of this article, "and it is not questioned by his officers or fellow scouts. The aim of the movement is to make honorable, useful, manly American citizens, and to do this without opposition of parents. All debatable ground is carefully avoided." And doing this, have we not laid the firmest foundation for the best and highest in any religion?

THE YOUNG KNIGHT OF THE TWENTIETH CENTURY

As Mr. Blumenfeld so truly says: "All you have to do is to collect, say, a dozen boys, ragamuffins, young ruffians, boys of blue blood and boys of red blood, anything so long as it is a boy, teach him the Scout Law, put him on his honor, stick him into a uniform, and you have at once transformed the urchin into a blazing-eyed young knight errant, a chivalrous, honest, honorable, and zealous patriot." And yet there are people who disapprove of the Boy Scout movement!

As an antidote for idleness and for that aimless activity which so often goes wrong when misdirected, or undirected, the Boy Scout movement is supreme. It furnishes not only wholesome occupations in the outdoor life, but gives the boy fine, high and true things to think about. at the age when he is most easily influenced for good or evil-a benefit which cannot be measured because it is an endless chain, whose first link connects with the family life in the home.

THE NEXT STORY OF THE UNITED STATES IS ON PAGE 6271. 

# SCOUTS AT WORK AND AT PLAY



The scout games, as well as the scout tests and purposes and spirit, are the same among the millions of scouts in every country. Here we see the boys making a scout pyramid, which is of practical use in wall scaling and for signaling. "A scout is a brother to every other scout" the world over. This great organization of the "boy-power" of the world has become a mighty power for good among the nations.



The Boy Scouts of America have been of great assistance in food growing and saving since the Great War of Nations began. At the request of the food administrator, Mr. Herbert Hoover, thousands of scouts raised war gardens. Hundreds of scouts have worked on farms and helped to harvest crops, as shown in the picture. The Government gave medals to scouts who had their own gardens, and interested others.

## THE SEASHORE AND IN THE



Here we see a scoutmaster instructing his troop in coast patrol work. There are seventy-five thousand scouts living near the coast who are ready whenever the Navy Department may call them. In England the Boy Scouts have been of great assistance in watching the coast line. The scouts in America are skilled in signaling, and the patrol organization has been perfected, and can be used by the Government if necessary.



Here we see the scouts preparing a meal in the open field. The boy in the background looks envious. But scouting is not all play, as is shown by the work of this greatest organization in the world for boys, in helping the government in the sale of Liberty Bonds and War Savings Stamps, and as "dispatch bearers," and in many other ways, such as helping other organizations like the Red Cross and the Y. M. C. A.

# The Book of

#### WHAT THIS STORY TELLS US

THE stories of the missionaries to the American Indians in the early days are full of examples of bravery, particularly in Canada. The Indians of the colonies to the South did not seem to be so fierce. In another place you may read of some of them. After a long time the Indians learned the power of the white man, and ceased to torture the men who brought them the story of Christianity. The good priest whose story is told below was not so much in danger of his life or of physical torture, but he gave his life to his people, and endured all manner of hardships, in looking after his people. This is a story of heroism shown day by day in doing unpleasant things.

#### BLACK ROBE AND WHITE HEART

N New Year's CONTINUED FROM 5950 with a request for their father's placeting eve, 1839, Albert Lacombe, almost twelve, stood at midnight in the raftered kitchen of his house near St. Sulpice, Quebec. Very proud and very happy was he, for he was to repeat to his father the New Year's wishes that his mother had taught him. This is one of the pretty "habitant" customs that has not died out in French-Canadian homes.

The night air was so frosty and still, that the joyful chimes from the cathedral in Montreal, twenty miles away, blended with the peals from the gray-towered church around which the little parish of St. Sulpice clus-

tered.

The lad's heart was filled with something like awe as he listened and waited for the music of the bells to die away. He noted that the vivid blaze from the wide fireplace, heaped with logs, flamed brightest on his brothers and sisters as they knelt about their father's knee. His mother stood in the deep shadows of the low room; she was thinking, he believed, of her ancestress who many years before had been captured by an Ojibway chief and was rescued by her "voyageur" uncle, who had brought her and her half-breed children back to her childhood's home.

As the chimes rang out the little formal speech was given, and closed

their father's blessing. but to Albert's boyish loyalty, his mother seemed left out. Turning to her, he cried impetuously, "And, Maman, you know how we love you!"

This unpremeditated outburst gives us the keynote of Father Lacombe's whole life. He traveled thousands of miles over the great high plains of the Canadian Northwest, over oceans and foreign countries, and always his cry was, to those who were within reach of his voice or influence, were they Indians, metis (half-breed), or white men, "And you know how

I love you!"

Albert and his brothers and sisters lived with their father and mother on the farm in St. Sulpice. The boy, when not at school, was kept closely at work on the farm. He enjoyed making sugar when "sugaring off time" followed the snowy winters in Quebec, but picking up stones on new land, feeding pigs, driving a plough,—these were duties not so pleasant, and his thoughts were busy with plans for the future. Should he be a "voyageur" like his grand-uncle, Joseph Lacombe, and go to the far, far West, where the fur companies sent men who were brave? His parents were so poor, that he could not hope for their assistance in gaining an education.

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One day a wonderful thing happened. The curé, driving a fat old horse, came to make a call. He spoke of the weather, and of the crops. Suddenly he turned to the shy lad standing near. "My little Indian," he said, for he was fond of Albert, and knew the story of Madame Lacombe's ancestress, "what are you going to do?" Albert was speechless. He knew what he wanted; but how could he tell so grand a man as "Monsieur le Curé?" He looked up desperately at his father. So the kindly father explained that he could not afford to send his eldest child to school, although the boy longed for books and knowledge. The curé nodded, but made no further reference to his question until he was leaving. Then he called back, as he clambered into his old cariole, "You send him to college and I will pay his way. Some day our 'little Who knows? Indian' may be a priest for the Indians."

So for years Albert Lacombe studied. He enjoyed his school, enjoyed his college. But like all real missionaries born, he grew to feel that school life and indoor life were not for him, and when he was twenty-two, he started for the far country he had dreamed of ten years before. Travel was not easy then. His long cassock was often ridiculed, and the long trail from Montreal to Pembina, far out on the northwestern prairies as distances were then reckoned, seemed very long indeed, as it was covered by stage and steamer from Montreal to Buffalo, from Buffalo to Dubuque, Iowa, and from there to St. Paul, Minnesota. On the Mississippi steamer the first free air of the wilderness came to young Lacombe. "I began to breathe freely, at last," he says of those delightful days. "I felt myself a new man."

When he reached St. Paul, the scattered settlement of log houses that had but recently dropped the name of Pig's Eye, he found scant accommodations. His horror at being shown a coffin in which to sleep was genuine, but "It's much better than the floor," the frontier priest remarked. "We made it too short for one of my parishioners; but even so,

it serves a good purpose."

From St. Paul on, the trail was harder and lonelier. The oxen drawing the creaking wooden carts moved slowly along the muddy roads. The marshes and creeks were swollen by the recent

rains, and sometimes the carts and oxen sank so deep in a swamp that the whole party had to work in harness to drag them out. Pembina was reached at last and there began Father Lacombe's years of service to the Indians and metis. He learned many Indian languages, went with the Indians on their annual buffalo hunts, when the unnumbered bison roaming the prairies looked like the type on this page, so closely did they feed, taught the children, baptized all who would, worked and loved. That was the Golden Age for the Indians, for the bison supplied them with three great necessities of life, food and clothing and fuel, and they were brave and independent and

Finally the missionary was sent further west. From St. Boniface and Fort Garry to Edmonton House, then the most important trading post of the Hudson's Bay Company west of Fort Garry, he traveled by way of Cumberland House. From there, ten York boats conveyed the party up the Saskatchewan. Alas. Father Lacombe's dreams of the free life of the "voyageur" were not borne out by the reality of their tasks. Canoes had been done away with, and men hauled the heavy boats against the current as horses hauled the boats on the Erie Canal. Walking in mud, over rocks, through swamps, along cliffs, sometimes in water up to their arm-pits,—small wonder the men were glad when they neared Edmonton House. Then they donned fresh red woolen shirts and knotted kerchiefs around their heads to make a brave appearance as they climbed the green banks of Saskatchewan to the palisadehid fort, trading post, storehouses, and the deep roof of "Rowand's Folly," as the governor's house was called. The flag-pole even was invisible; but the red flag bearing the well-known H. B. C. shook in vehement welcome as the western breeze blew over the ravine.

When the Blackfeet, Blood, Piegan, Strongwood and Plains Crees came to trade in spring and autumn at Edmonton House, Father Lacombe welcomed their coming as another opportunity to get acquainted with more Indians. watched with interest as the men rode up, wearing skin shields on their arms, full quivers at their sides, eagle-feathers in their hair, and startlingly bright paint their supple, half-naked bodies. 

Squaws and children, yelping dogs and clanging iron kettles added color and noise as they followed the ponies that drew the travois, or Indian wagon, formed of crossed poles on which were piled the camp equipment.

While the men traded their furs and skins for the things they wanted, the squaws put up the lodges and made the camp. Soon every Indian, big or little,

knew and loved Father Lacombe.

On and still further on he traveled. He went to Peace River, Little Slave and Lesser Slave Lakes. He went to Jasper House, where Father De Smet, who brought the story of the cross to the Flathead Indians in Montana in 1840, had gone in 1845-6 as peacemaker. It is at this place where the Athabasca River pours out from the Rocky Mountains, heading deep within their mighty gorges and ravines. Sometimes he was in forest fires, in floods, in blizzards. He wandered on foot, by boat, by pony or dog-team, even on snow-shoes, and everywhere he went he was cheerful, sunny and hopeful.

When smallpox and scarlet fever came among the Indians, there too was Father Lacombe, with medicine and advice, no matter how far away he might have been at the time of the outbreak. When a tribe of Crees attacked a tribe of Blackfeet with whom he was camping, he went around the outside of the palisade, holding his crucifix aloft and waving a red and white flag in an appeal for peace. In the noise of the battle the Crees did not hear him and a low-lying fog shut him out of their vision. He called to the unseen enemy, he waved his flag, but his efforts were unavailing. Suddenly a bullet, which had already touched the earth, rebounded to his shoulder and, glancing off, struck his forehead. The wound was slight, but the shock was so great that he staggered and fell. The Blackfeet, angered afresh, set up a wild shout, "You have wounded your Blackrobe, Dogs! Have you not done enough?" When the startling word ran through the ranks of the Crees, the firing ceased, and without waiting to meet their friend, the Man-of-the-Good-Heart, the Crees withdrew in confusion.

And so the years went on. The Northwest Mounted Police took charge of the country west of Winnipeg. The settlers came. Cattle, horses, and wheat fields increased. Railroads crossed the country 

the missionary had so often traversed. The fur trade diminished, and the buffalo vanished. The metis and Indians, who tried farming with poor success, were starving. Meanwhile towns multiplied. Father Lacombe's Indians sorely needed his love and aid. He had known them brave and powerful, honorable and hospitable—now they were degraded dependents. Where had the wilderness gone?

There are but few places in Canada, England, and even on the Continent, to which Father Lacombe did not go to gather money and get grants of land for his poor Indians and metis. Queens, diplomats, emperors, even the Pope himself, were interviewed, and never without instant response. His good works are so well known that one time at a banquet a toast was given in which he was compared to a carriage that, long ago, used to wend its way from one end of Rome to the other, and in which any one who was in trouble might take refuge, whether they were innocent or guilty. The toast concluded with the words, "He lends himself to all, for all."

As the years slipped by Father Lacombe finally settled down, at eightysix, in a "Home," near Calgary which he had founded for the homeless children and homeless poor who might be stranded as the tidal wave of immigration swept over the plains he loved so well. His Indian friends were practically all dead. Yet his great heart had to find some one to father, some one who needed him,

some one to love.

Shrunken and stooped, quieter than in the stirring years of wandering, yet with eyes and heart aflame to want and misery as of old. Father Lacombe's own words

may well end his story.

"We are told that in the earlier days of the Church an old white-haired man, bent with age and particularly tried by the labors of a long, painful apostolate, being no longer able to walk by himself, was carried by his disciples into the midst of an assemblage of the faithful, where he did not cease to repeat: 'Little children, love one another.

"This old man was the apostle St. John. Eh, bien, to-day you have before you another old man. I will say to you nothing else than what St. John said; like him I shall repeat to you, 'Love one

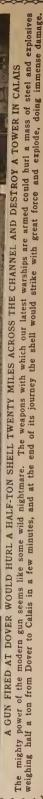
another.' "

The good Blackrobe died soon after.

# HALF A TON OF FIRE AND STEEL FLYING FROM ENGLAND TO FRANCE







6146~

# The Book of FAMILIAR THINGS



# WHAT A BIG GUN CAN DO

THE MOST POWERFUL THING ON EARTH

THE most powerful thing on the earth made by the hands of man is a big gun. With this mighty weapon he can send over a ton of metal flying through space at a speed of over twenty miles a minute, hitting a ship with force enough to shatter it to pieces.

It is a terrible thing to think that this great power is meant for the destruction of life, that the utmost strength that men can put into a thing is put into it to wreck ships or to blow up cities. But the guns are made for use in war and, while war remains possible on the earth, nations prepare for what may happen. The United States and Great Britain, with vast territories and wide seas to guard, put themselves in such positions that other powers will not wish to attack. That is the meaning of all the mighty Dreadnoughts and of the new 14, 15 and 16 inch guns, with which the big ships and the forts on land have been armed.

# THE MOST POWERFUL GUNS NOW ON SHIPS

The British Navy is the most powerful fighting machine ever set up on the face of the earth, and it is powerful because of its mighty guns. The most powerful gun in the British Copyright, 1918, 1919, by M. Perry Mills.

Navy, the most powerful gun afloat until recently, is known as

the 15 inch. There were 15 inch guns on German warships, but the German navy no longer exists.

That is how we speak of the power of a gun; fifteen inches is the width across the diameter of the muzzle, the point at which the shell leaves the gun. The United States and Japan have a few ships which carry 16 inch guns, but most of the ships of both of these powers carry guns smaller than 15 inches, either 14 inches or less.

What does a 15 inch gun mean? It represents the power to send a shell right through more than twelve inches of the hardest steel at a distance of seven miles. It can do very much more than that. It might send a shell from the top of Dover cliffs right over to the coast of France. But we are dealing now with the definite purpose of a gun. It is of no use firing great shells at random; each one costs hundreds of dollars to fire. To be sure of hitting, the gunners must have sight of at least the masts of the vessel at which they aim. From eight to ten miles is the greatest distance at which a gunner at sea can be expected to do good work.

Let us suppose, then, that the un-

fortunate day has come when one of these great guns has to be fired, as it has indeed in Europe. Let us describe what actually happened in such a case during the Great War, when the British and German ships fought off the Falkland Islands.

# How a big gun on a battleship is fired

The ship lies eight or nine miles from the enemy's ship. With his instruments, an officer calculates the distance, and the gun is aimed according to directions given the gun crew. Finally the word to fire is given. The gunner presses a button, a current of electricity is set up, a charge of powder is exploded and, with a deafening roar, the cannon throws out a great shell which speeds through the air.

This half-ton shell, shaped like an immense cigar, whirls through the air, and, in a little more than the time that it takes a fast runner to run a hundred vards, covers the eight miles separating it from the enemy's ship. Its journey is ended, but its work is only now begun. The shell, though it has been flung nine miles, has still enormous power behind it. It may go through the steel armor of the ship and burst into fragments, making an enormous hole in the side of the ship, perhaps entirely ruining it, rendering it a helpless wreck. If that one shell should not do the deadly work, others will follow.

# Some land guns greater than naval guns

Yet huge as is the naval gun, it is smaller than some of the big guns used on land in the Great War. When the Belgians began defending Antwerp against the Germans they expected to be able to hold out at least three months, but in eleven days the massive, concrete and stone fortifications about the city were reduced to powdered heaps by the shells of the German cannon and the city had to surrender.

These great siege guns did not have long barrels such as those on the battleships, but were shorter. They were not fired directly at the object to be destroyed. but were fired at an angle, so that the shells described a curve and fell upon the forts and then exploded.

#### THE GREAT GUNS USED IN THE EUROPEAN WAR

The Germans had brought up a 16.5 inch gun, which hurls a shell weighing

over a ton. Never had such a powerful weapon been used in warfare. The gun itself cost half a million dollars and, with its carriage, weighed 120 tons. Three quarters of a ton of powder was required to fire each shot. When the massive shell from this gun fell on the fortifications of Antwerp it would explode and send a fountain of shattered concrete and stones a thousand feet up into the air, leaving a hole like the crater of a volcano. It is no wonder that the Belgians were unable to hold the city longer. Most of the guns the Germans used were smaller, either eleven or twelve inch, but these were also very powerful. The Germans were able to drop smaller shells (about 9-inch) upon Paris from points about 75 miles away.

#### THE MOST POWERFUL GUNS EVER BUILT

The United States has some guns built to defend the coast and harbors which are even more powerful than the German guns used in Belgium. They are sixteen inches across the muzzle, and fire shells weighing 2400 pounds, which require about 900 pounds of powder to send them on their way. These guns are fifty to sixty-six feet long and have enormous power. One of the shells could easily destroy an enemy warship twenty miles or more away if a fair hit should be made.

Other guns similar to these have been made for the fortifications at the Panama Canal. These monsters could sink a battleship long before even its masts would come into sight of the gunners. To accomplish that purpose an officer would go up in an aeroplane, or a balloon, locate the enemy's ship, then signal to the gunner where to aim. Or a tower is built from the top of which an officer could get the position of the ship. The gunner would then aim with his directions as guide. But a tower is not so good as an aeroplane, as it reveals the location of the gun to the enemy. These guns, of course, cannot be moved from place to place, but are fastened securely to a foundation of concrete and steel.

#### THE GREAT GUNS WHICH GUARD THE PANAMA CANAL

To fire one of these biggest of big guns it must be raised at an angle to fire twenty That is why a ship has never carried so powerful a gun; the recoil from the shot downward would be so great that an ordinary deck might not stand the <del><</del>

strain. The United States has experimented with 16 inch naval guns, however, and the new warships now carry these monsters.

The making of one of these great guns is a triumph of engineering skill. Though a cannon looks solid, it is not made in one piece. The barrel is bored out from solid steel of special purity, and its interior is scored, or "rifled," to make the shell twist as it flies through the air. Then outer tubes, or coats, of metal are "sweated on." That is to say, they are heated, which causes them to expand, and then are fitted over the inner part and allowed to cool and shrink.

#### How tiny wire strengthens THE GREAT GUNS

The makers may go on building up outer coats of metal in the form of these steel hoops, or they may wind wire on a gun. The wire, wound by machinery, is coiled round and round, till more than a hundred miles of it has been wrapped around the great cannon. Great as is the strength of the wire in resisting pressure which pushes out at the sides, it does not give strength lengthwise. Extra thickness of metal must, therefore, be given at the muzzle of the gun, where the vibration caused by the shell leaving the weapon is heaviest.

The back of the gun is the breech. It is here that the shell is placed, in a specially constructed chamber. When the shell has been fixed in position for firing, the breech is closed and fastened by enormously strong screws, so that the charge shall not burst the gun open at the back. When all is ready, and the word to fire is given, an electric spark is kindled and this fires the charge which sends the shell forth on its terrible work.

THE DIFFERENT EXPLOSIVES USED TO DRIVE THE SHELLS

The explosives used in big cannon are of many kinds. Those which change to a gas immediately, of course exercise greater power for a minute. They would probably burst a gun, but are used in shells which burst outside. An explosive which changes to a gas more slowly is used to force the shell out. The shell itself contains some quickly burning explosive which bursts the shell later into thousands of pieces.

And this brings us to the whole mystery of the flight of the shell. When the charge is exploded, either by heat 

or shock, the effect is the same. Gunpowder, of course, is a powder, but cordite is not. It looks more like a kind of cord, and it is that fact which gives it its name. Smokeless powder is pressed into many different shapes. There are many other explosives with different names. But the effect is the same in all cases. The electric spark, or other form of heat or shock, explodes the charge. In an instant the mass of the explosive which discharges the shell is converted into gas.

THE EXPLOSIVE IS CHANGED TO GAS, WHICH NEEDS MORE ROOM

Gas takes up a great deal of room. The gas cannot get space in the cannon, because the huge shell is in the way. As nothing can stop the gas from expanding, in its gigantic effort to free itself, the great shell is sent spinning to the muzzle of the cannon, and out for twenty miles into space. A shell weighing a ton can be driven from England to France in a minute or two.

An explosion of gas in a house will blow all the windows out and perhaps shatter a door or two and bring down a wall. But imagine that explosion enormously multiplied, occurring within a tiny steel chamber! We can fancy how things would fly then. That is what happens in the terrible recesses of the mighty gun. The explosive, changed into enormously powerful gas, must instantly find its way out. There is only one way out, and that is up the tube of the cannon to the open muzzle. The shell is in the way, and the shell must go, or the gun will burst.

Explosives such as cordite, or smokeless powder under different names, are used in preference to gunpowder. Since they are smokeless they do not betray the gun to the enemy. They explode more gradually and do not exhaust themselves so quickly. To fire a big shell would require such an enormous quantity of gunpowder and it would explode so quickly that it would probably burst the whole gun before the shell reached the muzzle. Aside from that, cordite, since it explodes more gradually, does not heat the sides of the cannon so much. Cordite, however, creates such intense heat that it melts a little of the inner surface at each shot and the very big guns can only fire a limited number of shots. After that a new lining must be put in.

THE NEXT STORY OF FAMILIAR THINGS IS ON PAGE 6107.

## BIRTHPLACE

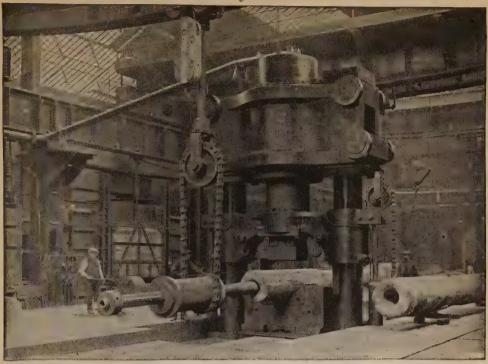


Of all the wonderful inventions conceived by man, perhaps none can so truly be regarded as a symbol of might and energy as the big gun, of which these powerful steel furnaces are the actual birthplace.



The steel is drawn from the furnace in a flery stream, and carried in a great ladle to the casting-pits, as shown here. When it cools it becomes a solid ingot of fifty tons, like that seen on the left. 

## HAMMERING THE JACKET INTO SHAPE



The modern big gun is not a solid mass, but is built of steel tubes fitted one upon another. In this picture we see one of the great barrels of the largest type of gun being forced, or pressed, into shape.



This is the jacket of a big gun, the shaping of which by a hydraulic press is nearly finished. When completed this gun will hurl a shell weighing half a ton a distance of thirty miles in a minute or two.

# DIPPING A 50-FOOT





The inside tubes of a gun are cast and forged like the outer jacket. After a tube has been turned, cut into shape outside and bored through the middle, it is heated and let down by a crane, as shown in top picture, into a pit of oil to harden it. It is then taken oit, straightened if it has become bent, and turned, or cut, into shape outside. The lower picture shows the outside jacket of a gun being turned. 

#### PUTTING A BIG GUN'S JACKET ON



The main tubes of the gun are fitted one upon another and sometimes steel wire is wound round them. The wire for one gun is 117 miles long, tightly wound layer upon layer around the barrel. The outer jacket is slipped on, as shown in the top picture. The outside of the gun is turned on a lathe; the inside is again bored so that it may be perfectly even. The bottom picture gives a good idea of the boring operation.

#### INSIDE OF A BIG GUN



This is the kind of workshop in which a big gun is made. It is of enormous size, and the machinery is the most powerful in the world. Gigantic cranes lift and carry big guns as though they were toys.



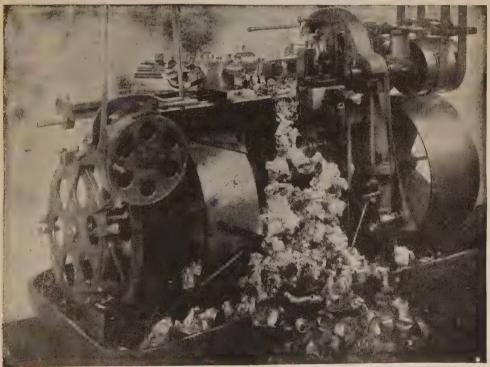
This is the mounting department. When the gun is finished, and has been tested by firing as shown on page 6147, it is brought here and mounted upon a carriage with very clever and elaborate machinery for turning and tilting it. It is then ready for fort or battleship. However good the gun might be, if it were not properly mounted so as to turn about in all directions it would be almost useless in war.

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# THE KNIFE THAT SHAVES STEEL LIKE PAPER



In the boring and turning operations the steel of the guns has to be shaved off. In a small picture this marvelous operation on a gun cannot be well shown, but we can see a small lathe doing the same work.



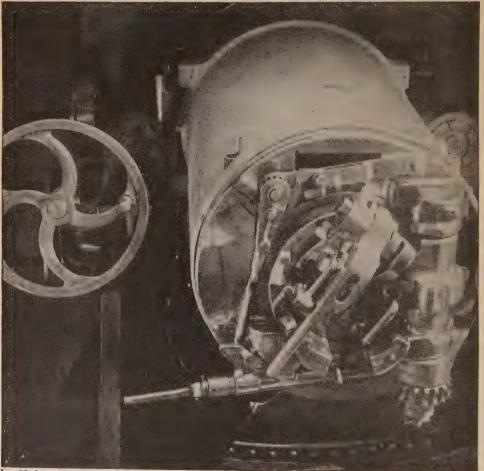
These pictures show how easily steel can be shaved by a powerful lathe. The big guns are made of the very finest steel that can be manufactured, and to be able to cut such a metal is an engineering triumph.

# WHAT A BIG GUN IS LIKE INSIDE





These pictures show the muzzle of a big gun. On the left the boy on the shoulder of the sailor is looking at the grooves, which cause the shell to twist as it is fired, thus adding tremendously to its speed.



In old days a gun was fired by applying a light to the gunpowder; now elaborate machinery is fitted to the back of the gun to send the shell on its terrible journey. Experience is needed to handle a gun. 

# LITTLE GUN AND A BIG ONE



Picture from Underwood & Underwood, N. Y.
This is not a big gun, but it is one of the most useful guns in warfare. It is one of the famous French
"seventy-fives." The French use the metric system, and the bore of this gun is seventy-five millimetres, about three inches. It is very accurate, can be fired rapidly, and seldom gets out of order.



Picture from Brown Bros. This is one of the great coast defence guns at Sandy Hook. It is mounted, as you see, on a disappearing carriage. This means that when the gun is fired the recoil moves it backward quickly so that it cannot be seen over the top of the pit, except from an aeroplane. 

When loaded it is brought forward quickly.

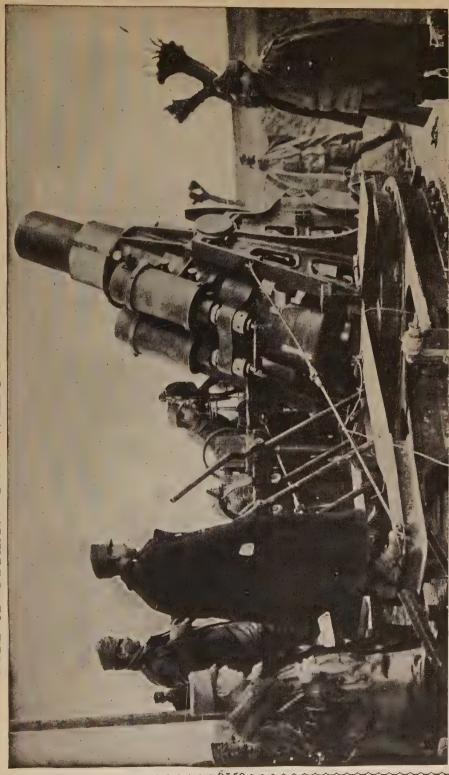
# ONE OF THE GREAT KRUPP GUNS



Some of the great Krupp guns measured sixteen and a half inches across the muzzle and fired a shell weighing a ton. They shattered all fortifications against which they were aimed, and reduced them to masses of concrete and twisted steel. Nothing could withstand their tremendous force. Notice the broad "caterpillar" wheels, which spread the weight over a large surface.

Photograph, Underwood & Underwood, New York.

# EFFECTIVE 80 WHICH PROVED THE AUSTRIAN GUN



Though not so wide across the muzzle as the great Krupp gun shown on another page, these Skoda guns, firing a 12-inch shell, proved very effective against the Russian fortifications. They are lighter than the Krupps and can be more easily moved from place to place. Both are fired at a great angle, and the shell describes a curve and falls with tremendous force. As it strikes the target it explodes and smashes the steel and concrete forts or digs a great hole.—Copyright, Underwood & Underwood, New York. 

# THE GREAT SKODA GUN BEING MOVED TO ANOTHER POINT



powerful motor pulls the gun, weighing many tons, from place to place when necessary. The gun itself is in the rear, while between is the carriage. This contains, besides the foundation from which the gun is fired, the recoil mechanism which absorbs the shock when the gun is fired and prevents it from shattering itself and everything Notice the broad wheels, intended to prevent the crushing of the pavements. Few bridges, however, were able to sustain the enormous weight.

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# THINGS TO DO



# DRAWING THE THINGS WE

WE are learning to hear the beautiful music CONTINUED FROM 6084 that is at the heart of everything. When we all

can hear it and love it, then the Golden Age will have come. Many are seeing the dark night change to the beautiful colors of the dawn of this age, and are glad. We all want to see them too, and to feel the gladness.

We have learned already how important it is to look carefully at the boundary lines, so that our minds may compare them accurately before we begin to draw; and we know that the accurate relation or proportion of line to line that is, their valuesforms the alphabet of drawing, or the notes of its music. Now we will consider how to look for shapes.

Fill a narrow-necked bottle with water, and put into it the stems of the leaves or flowers you mean to draw; it would make us dislike our drawing lesson if, when we had finished there were lying before us

bruised and dying plants.

Now take a simple-shaped leaf, and put it before a piece of paper similar to that on which you will draw. Thus we shall receive the same impression from our finished drawing as from seeing the leaf against its background. It also helps us to fix our attention upon the leaf, by shutting away all other objects. Draw the leaf just as you see it; do not draw the outline only, but fill it in with crayon the same color as the leaf. When you have finished, put your drawing near to the leaf and sit down again, so that you can see the two-the real leaf and your drawing-from the same view that you had when you drew it.

First let us look at the real leaf, and find out exactly what we want to tell others. Notice that the boundary lines are not upright; they curve. Now look at the whole shape, and see whether it is as wide as it is long; or if it be half as wide, or a third, and so on. Then notice where the widest part

occurs-at the half of the length, above, or below it. Observe whether the top of the leaf is more

rounded or sharper than the bottom. Thus you will have found just where the curve changes from one direction to another; which position is the rounder and which the flatter. This is most important. Look at both sides, and see the shape enclosed by

We know now what to look for, and are ready to compare our drawing with the leaf. We must do so in the same way as we con-

sidered the leaf.

We must give our eyes time to see, and our minds time to judge quietly and fairly whether we have drawn a faithful portrait. We are beginning to realize that we cannot draw truly until we have definite knowledge of the boundaries of the shapes. Knowledge must come first. Our drawing should be the result of knowledge of shapes gained by examination. A line by itself means nothing. It is quite right wherever it is placed. A line by itself is never wrong. It can only be wrong when placed into position with the fellow-line needed to complete the shape. It is the shape enclosed that is right or wrong. So when we have judged the values or lengths of lines one with another, we must be careful to draw the lines in just the right proportion. When we draw a line we must be watching its fellow.

Shells are beautiful. This is because they have shapes of different sizes, falling side

Take every shell you have which has a mouths facing you and their spires at the top. Notice that these mouths nearly all occur on the right side as they lie before you; that they are rounder and fuller on the mouth or right side than on the left; that the long line on the left ends with a gentle, inward curve to the canal, or lower

#### 

end of the shell. Now decide the position of the mouth-whether it extends half-way, a quarter, and so on, across the shell, and how far up. Count the turns of the winding pathway up the spire, and notice how very much it

narrows at turn. each Now draw the shells. Watch carethe fully whole shapes, not the boundaries of them.

We see how imporshapes tant Let us are. look at the piece of ornament on

this page, and its analysis. We see that under these leaves there are lines of music. This is why the decoration pleases us and is like music to us.

To our list of things to draw we will add objects with curves in them-leaves of every kind, shells, butterflies, and feathers.

Now we will consider objects such as boxes and baskets, objects of which we may see two or more sides, the others being turned

Take a cardboard box, and with the

cravons color one side red, another blue, and the top green. Place it on a large piece of white and paper, make a portrait of it on tinted paper just as you see it before you.

Now let us examine the

Which the largest surface, the blue, the red, or the green? Look carefully from one to the other. When you have decided upon the largest, look at each of the others, and compare them in turn. We know now definitely the relative values of these three shapesthat is, we know which is the largest, which the smallest, and which comes between. Look at your drawing, and see if you have put these shapes into their right places.

If they are not right, let us find out why. There must be something wrong with their boundary lines. Perhaps their lengths are wrong, or they do not go in the right direction. Suppose you are standing at the corner, between the red and the blue surfaces. Now put out your arms the way the long lines of the red and the blue surfaces go. You do not put out your arms straight with your shoulders. The left arm goes towards the corner of the room; and the right is

also forward, but not so much as the left

Look at your drawing. You represent the middle line between the red and the blue. Do the lines in the drawing go in the same

direction as your arms? Then why not?

If you had out in with the white crayon the shape of the ground on which the box stands. vou would not have made this mistake.Now

place your drawing near to the box, and sit in your seat again, and compare the two. Does the drawing give us the same impression as the box? Is it like the box? Look from one to

the other.

Beautiful shapes of feathers.

If the shapes are wrong, then we have been strangely unjust. We had before us three shapes to judge. We have not been honest with them. We did not carefully enough compare one with another. So alter this queer portrait, or better still, begin again, and remembering this time to get the relative sizes, the

boundary lines and the correct direction, make another portrait.

We must not forget that in drawing we are dealing with appearances. If we know that a side of an object is really long and wide, butlooks



In the right-hand picture we see the beautiful shapes and lines of music underlying the decoration on the left.

small to us because it is turned from us, we must draw it small. If we know that another side of the object is really small, but appears to be the larger because it is turned towards us, then we must make it the larger. This rule is of the greatest importance. We must always be very careful to draw the surfaces just the size that we see them, neither greater nor smaller, notwithstanding our knowledge of what their true size may really be.

#### A PLAY LESSON

Suppose the beautiful princess is going to see her friend at the house in the lovely Her friend will, of course, want garden. to be polite, and to do all possible honor to the gracious princess, and will hurry to bring the chairs out into the garden.

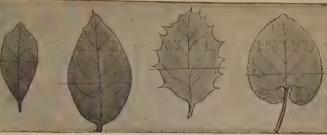
#### ♦ A GAME OF SKILL WITH CORKS ♦

Now set to work and draw those chairs. Some must face us, some will be sideways,

some will, have their backs to us. But one has been knocked down by clumsy maid.

Let us draw this one too. You say that you are not able to draw a chair lying down!

Well, when



THE BEAUTIFUL SHAPES OF LEAVES

we want to draw an object that we think we cannot, we must be still for a moment, shut our eyes, and try to imagine it. We shall see it quite plainly after a little while. We shall notice objects much more thoroughly when we have treid to draw them from memory, and so we shall learn how carelessly we have hitherto looked at things.

Make a cardboard chair with no separated legs, really a box with a back. Color it as you did the box, and draw it just as you see it from every possible view. Watch the shapes, as in the drawing of the box.

Let us put in some flowers and grass. Grass is not hard to draw, and we can make our

flowers look natural if we have patience. We might trv to draw the princess sitting on one of the chairs.

Now see what else you can put the into picture. Never mind how

drawing looks, or what queer things you draw. Keep on drawing, and then look at real people sitting down. Try to find out why these friends do not look as if they were sitting. Perhaps you have forgotten to bend their legs at the knees, or at the body!

There is nothing more true than the old saying that we learn to do by doing. But we must remember that this does not mean that we shall learn if we keep making, carelessly, the same mistakes every time.
must try to improve.

#### A GAME OF SKILL WITH CORKS

A SIMPLE game that, nevertheless, gives plenty of scope for skill and careful exercise with the hand can be played with a number of ordinary bottle corks. These may be from larger bottles, like those in

which we buy vinegar, or they may be from the smaller medicine bottles.

The only essential is that they should be fairly good and level corks that will easily stand upright.

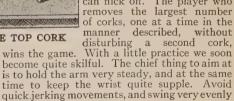
preparation only beyond the collection of the corks themselves is the making of what we may call a fishing-rod. Any ordinary thin stick or cane will do, and it should be about eighteen inches or two feet long. To the end of this stick we tie a piece

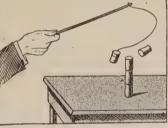
ture shows what the fishing-rod looks like.

of thin, flexible string about two feet long, and to the end of the string a cork, similar to those that we have collected. The pic-Now on a table we pile up the corks, one on top of another, using as many as will stand in this way, so as to get as high a pile and as many corks as possible.

The game is to stand or sit at the side of the table, and with our fishing-rod gently to flick or touch the top cork of the pile, and knock it off without upsetting any others.

Having done this, we try to knock off the next cork, and so on. So soon as we disturb another cork besides the one for the time being at the top which we are removing with our fishing-rod, we lose our turn, and another player piles up the corks once more, and sees how many he can flick off. The player who removes the largest number of corks, one at a time in the manner described, without





REMOVING THE TOP CORK

# THE WAY TO SHARPEN A LEAD PENCIL

and quietly.

A LEAD pencil that is improperly sharpened is neither useful nor sightly. If the pencil is for sketching, it should be sharpened equally all round so that a perfect point is produced, and the wood should be cut away at a gentle slope. Short, stumpy points and very long, tapering points are equally bad.

If the pencil is to be used for drawing straight

lines, as in perspective work, then it should not be sharpened to a point. Cut the pencil with a long slope on opposite sides, so that the end is chisel-shaped, and then slightly round the angles of this chisel end. A pencil sharpened in this way may be used for linework for a long time, and the best way to resharpen it is to use a piece of sandpaper.

# TWO WAYS TO MAKE A GARDEN HAMMOCK

WHEN the summer months approach and the fine sunny weather draws nearer, we all like to spend as much time as possible out of doors, and there is nothing more delightful than to lie in a hammock under the shady

trees with an interesting book.

It is quite easy for any boy or girl to make a hammock that will be quite attractive and comfortable, without the trouble of learning to do network. We can make a hammock of striped canvas, or of any similar material such as is used for awnings. The size of the hammock depends, of course, upon the size of the person who is going to use it, but

if we are going to make a hammock that will take a fullygrown man or woman, we want a piece of material about three and a half yards long by a yard and a half wide. A material with a narrow red stripe always

looks pretty.

If the material is the full width required, there will be a selvage at each edge, so that it will not be necessary to hem it. At each end of the material we fold over about two inches, and

sew it down in such a way as to make a deep hem with room for a stout piece of wood to be slipped through as shown at the top of the first picture. At each end of each stick we cut a small groove or notch, as shown. Then, taking a rope, strong but not too thick, we tie the ends to the grooves in the stick at what will be the head, or upper end, of the hammock.

A similar rope is tied to the stick at the other end of the hammock, which is now ready to be slung from a tree. The length

of the rope tied to the sticks at the ends of the hammock depends upon where we are going to hang it, and we must decide this, and measure the length of rope required. With a cushion for the head we have a very comfortable ham-

mock, and the cost in money and trouble for the whole of it is very little indeed.

Instead of the pieces of wood, top and bottom of the hammock to keep it spread out flat, we can, if we like, thread the rope through the hem, and when we sling the hammock and get into it, the ends will be drawn together and the canvas become boatshaped. Some people prefer this style of hammock, and it is as easy to make as the

Still another kind of hammock, not so comfortable, perhaps, but yet very useful, can be made for a few cents from old barrel staves. We can easily get some barrels which we can take apart. Then measure off on each stave about two or two and a half inches from the ends, and draw pencil-lines. Using these lines as guides, we bore two holes at each end of each stave, and then thread the staves together, as shown at the bottom of the first picture, using a strong, flexible, but slender rope, and leaving from one to two inches be-tween the staves. Tie knots at the four ends of the ropes to prevent the staves from becoming unthreaded, and then attach loops so that the hammock may be slung wherever it is wanted. Of course, this simple wooden hammock will not be quite so soft and flexible as one made of canvas or of net, but if it is covered with cushions or with a rug it will make an excellent resting-place.

It is important in selecting our barrels from which to obtain staves that we choose only those that have dry, sound wood. Do not have a barrel in which the staves are at all split or dented. A splinter in one's arm or leg, or a sudden fall, are not among the pleasures that we are anxious to get from our hammock. In hanging a hammock we should always see that there is a considerable stretch of rope

at each end. As regards the first kind of hammock described on this page, if we do not want to go to the expense of buying canvas, we can use an old piece of carpet, or even a couple of old sacks, so long as they are strong and sound. With these, and a long piece of strong rope, we can make a hammock in a few minutes, and if a good rug be thrown over it as a covering, the

material of which it is made will be unseen. The hammock is a very ancient luxury, dating back to Greek times. Columbus, too, found that the natives of America used swinging

beds, and it is from them that we get our word hammock. The word comes from the hamac-tree, the bark of which was netted and used by the Indians for their hammocks. In South America, to-day, the hammock is used in all the rubber and coffeeplantation



How the hammock is made.

The canvas hammock complete.

camps for sleeping purposes.
Some little skill is generally needed before we can get in and out of a hammock easily, but with practice we shall soon be able to

Amusing accidents sometimes occur when one tries to get out a little too quickly, or else does not take care to keep watch of his balance.

The hammock has such a provoking way of turning upside down, and when this happens, of course what was on the top goes to the under side and one goes straight to the ground, and gets perhaps a bumped head and certainly a surprise. It is well to have two rings attached to the ropes, for when the air is damp the ropes grow shorter, and, therefore, the hammock is raised too high.

# A WORK-BASKET THAT A GIRL CAN MAKE

WE all know the little round wicker baskets shown in the picture below, and called or stocking baskets. They cost little, egg or stocking baskets. varying according to size, and, properly fitted up, make the very nicest little work-baskets

We are going to line our basket with cretonne, and put "workmanlike" little fittings all round to contain our sewing materials.

We shall need half a yard of thin cretonne, with a small pattern on it in pink and blue, or in two other prettily contrasting colors, such as vellow and

brown or mauve and green. First, we cut a strip of cretonne 2 inches longer than the How to arrange pockets and slots on half basket is round, and 2 inches wider than the basket is high.

On this strip we sew a couple of little cretonne "patch-pockets," about 3 inches square, and a slot-holder for the scissors, and other things, with four divisions. This is made of a folded piece of the cretonne, I inch wide, and about  $\frac{3}{2}$  inches long, as we see in the first picture.

Our strip is now ready to be sewn into the basket. We turn in the top edge all along—an inch turning will do—and neatly sew it all round to the inside of the basket with a big needle and thread. We must take

care to let the stitches show as little as possible, by using thread the same color as the basket, and we must not attempt to pierce the willow with the needle, but pass it between the pieces, to make the necessary stitches. Where the ends meet we join the cretonne by folding

the last edge in, and catching it down to the other.

At the bottom edge our strip will be a little too full, so we arrange it to fit by making a small pleat here and there as we tack down the raw edge to the bottom of the basket. Note that we do not turn in the bottom edge because it is long enough to lay on the bottom of the basket and be hidden by the bottom cover-which is made separately on a circle of stout brown paper or cardboard cut to fit, and covered with cretonne. We sew the cretonne to the brown paper with white thread —using big stitches on the wrong side and little ones on the right—all round the edge. A few firm stitches taken through the canes will hold it quite firmly in its place.

We can now, if we like, make a little ruche. or frilling, of inch-wide cretonne, and sew it all round the top edge of our basket, but if we have done our work neatly this is not necessary. The

basket in the picture is finished with a bow of ribbon

only.

Now about filling our pair of scissors, two bodkins -one large and one smallsome needles and pins, pearl

and shoe buttons, a tape measure, and thimble. With a 3-inch square of cretonne we make a little pincushion and stuff it with cotton, and hang it on the side of the basket with a 3-inch piece of cord, as we see in the second picture. We shall want, too, a little needle-book, made in the usual way—a stiff cover and flannel leaves. This we also attach with cord, leaving enough to allow us to get to it easily.

The tape measure we can fold up and slip in one of the slots, with the scissors and bodkins:

while the thimble, and any other odds and ends we find useful for sewing purposes, can go in one of the pockets, and the buttons in the other.

The two or three spools of thread, which we must not forget, must lie in the bottom loose, where they can be easily found. Every

girl should own her own dainty work-basket where she can keep her thread and needles and other sewing accessories. The man who said he would not marry the girl who spoke of losing "our" needle was quite right, for it implied many lacks beside that of needles and thread.

A fitted work-basket is a very expensive thing to buy, but one like this can be made for a small outlay, and will be as satisfactory as one costing many times as much.



the length of the slip of lining.

The work-basket complete.

#### HOW TO WALK IN STRAIGHT LINE

TT may seem quite easy to walk in a straight line, but, as a matter of fact, it is almost impossible to do so.

What we must do is to fix our eyes upon two objects in front of us, the one nearer to us being smaller than the one farther away. The two objects must be in line, and as we walk we take care to keep them all the time exactly in a line before us—that is, one object exactly in front of the other in our vision.

As we approach these two objects we must select a third, also in a line with the others, 

and after we pass the first object we can use the second and third as our guides. Then, as we approach the second object, we select a fourth, and so on, taking care, as we walk, always to have at least two objects coinciding with one another in our vision. Any objects can be chosen for this purpose, though if they are on a level with the eye it is a great advantage. Trees and shrubs, posts and telegraph poles, stones and hillocks, are only a few of the many objects that will occur to the mind of any boy who determines to perform this feat.

## A ROLL-UP CASE FOR SILKS

THOSE of us who are interested in embroidery should make a little case to hold our skeins of silk. It is rather a good idea to think of such a case as a paint-box, and

to use it in much the same way.

For this case, which holds twelve skeins, each in a separate slot, we should need half a yard of crash or colored linen, a scrap of flannel for the needle leaves, and a yard of brown cord. It measures 24 inches by 13 inches, and the piece for the slots, 6 inches by 18 inches. Of course, we can choose the colors we like best; and the outside need not be made of linen, but can be made of silk, cloth, velvet or satin.

The case piece is cut oblong, and afterwards only one end is shaped as shown in the picture below, which shows the case

opened out.

First, we hem the material all around very neatly, and then make the little pocket which comes at the other end by doubling the stuff over 4 inches and sewing it down. This pocket is useful

for all sorts of odds and ends, scissors, pencil, thimble, the threader—which we will explain presently—and will even take a small piece of any embroidery we may be working on.

To make the slots, we just hem the 6-by-

18-inch strip all round, and then sew it down to the crash foundation in a series of flutes. Each flute will be 1½ inches of the strip sewn down to 1 inch of the foundation. It will be quite easy to do this if we tick off the measurements on both pieces with a lead pencil, then all we have to do is to join the

points together.
The position of the flutes can be seen in the second picture. We sew the strip in the middle of the foundation. starting inches from the bag, or pocket. At this point we fit in our two needle leaves. neatly notching

the three edges with scissors, and sewing the fourth edge just under the first flute. We must "back-stitch" each flute down, and very firmly sew it at each end with several stitches, one over the other, or they will come undone.

The inside of our case is now ready for use, and the only thing we have to get for it is a long pin, or "threader," made of 15 inches of copper wire, just bent exactly like a hairpin. This we use as a bodkin is used to thread

each skein through a slot. It is a good plan to group the different shades of each color together. Thus it is easy to avoid mistakes in matching, and trains our eye to keen perception

The cord is sewn on at the point in front and used as a fastening, and the ends are finished

The front of the case we shall decorate with a medallion of embroidery—a circle 21/2 inches across, filled with a pattern, worked in crewel stitch, and having its background filled with French knots. We do this on a separate little piece of crash, cut half an inch larger

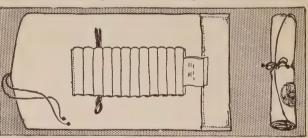
all around: the edges will be turned in, and we shall hem it to the foundation when finished. In the medallion is a shaggy marguerite.

The pattern for the medallion given in the first picture must be traced off, and transferred to the material by means of a sheet of blue carbon paper. If we have not done any French knots before, we must work a few on

an odd scrap of stuff first. They are not difficult. The thread is brought up to the right side of the stuff, and a tiny stitch is made near the point where the thread comes through; but first we have wound the thread twice round the needle, and after the stitch we have looped it once over the point of the needle before pulling it tight. This leaves a neat knot on the front, and we have only to take our thread through the same hole through which it came to the back before beginning the next knot.

The particular form of decoration shown here

has been suggested chiefly on account of its simplicity. The medallion makes up charmingly, but if we prefer something more elaborate. we can, of course, substitute any pattern that commends itself to our taste. With clever



Design for medallion; how to make French knot.

The case as it appears when opened out and also when rolled up.

fingers and a little ingenuity we can make ourselves many such dainty accessories for our needle work. It should be the delight of every young girl to have the contents of her work-box pretty and attractive to the eye as well as tidy and useful.

The girl who keeps her silks this way will save much time which would otherwise have to be spent in untangling them, and we all know that such a task is very provoking to one who is naturally of an orderly disposition.

# MODELING A BOAT, BELL & MATCH-STAND

UP to the present the models we have made have been worked up from the sphere, or ball. The canoe, the first of the present set of models, is of a very different character. Instead of using the sphere as a beginning, we take the roll; or, rather, the

beginning, we take the foll, of cylinder. Our method of work, therefore, will be somewhat different. The model will demand considerable skill, and we must not be discouraged if our first efforts fail. The canoe, if made well and its parts proportioned without too great a bulk of material, will float quite easily. It is to be made by the fingers entirely out of one piece.

fingers entirely out of one piece.

Before beginning, we knead our plasticine thoroughly and see that it is fairly soft. Roll out a piece of suitable size to the form shown at A. Then, while it rests on the slate, with the first finger of the right hand press down its length a

hollow, or groove, as shown at B. This pressure repeated will cause the material to bend upwards at each end, as seen in the picture.

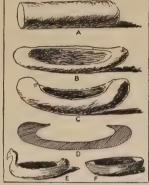
Now, holding the model in the left hand, continue the pressing, and make the groove deeper, as shown at c. Force the finger-tip

ences in the shape of these, but with practice we should be able to make them with ease.

The hand-bell illustrated has much in the making of it that is similar to the last model. It is quite possible to make it

from one piece of material, but it is better to make it in two parts. The bottom part should be made first. The little sketches, A, B, C, D, show plainly the various stages by which we reach the correct form. Roll out a short cylinder, and, holding it in the left hand with the fingers round it, bore a hole about two-thirds of the way through in the direction shown. This may be done with the finger if it is strong enough; if not, a lead pencil will answer the purpose nearly as well. This will give the appearance as shown at B. Still grasping the cylinder in the same manner, rotate the pencil or finger in the way

marked by the arrows in c. This will widen the hole, and cause the spreading out of the end to be evenly done. It thus roughly assumes the bell shape shown at p. With fingers and thumbs mold it carefully until it assumes the correct form, preserving the hollow



VIKING BOAT AND CANOE







THE MODELS AS THEY ARE WHEN COMPLETED

well into the thick substance at each end—see figure D—and work the material well over the space which the finger-tip has made. This will give the sheltered ends. We must not, of

course, attempt to make the hollow by cutting out. Cutting or carving is not modeling. The ends are shaped by finger and thumb, and the whole is made smooth by stroking lightly. The exact shape of the ends can be varied to suit our own taste. But we must be careful to make the ends even, otherwise

the canoe will not float well, and our model will be spoiled.

This exercise can be used as the basis of many others—the Viking boat, for example, as shown at E; or the ordinary type of boat, as illustrated at F. There are differ-

as shown by the section marked E. We shall see that the material is left thicker at the top, and decreases in thickness down the sides. This is to ensure stability, or firmness, and to allow

of sufficient substance in which to fix the handle. Make both the interior and exterior as smooth as possible by gentle pressure while stroking with the forefinger.

There may be many varieties of handles, but in the illustration marked F perhaps the simplest of all is shown. It is rolled



A HAND-BELL A MATCH-HOLDER

out of a thin cylinder, and modeled by altering the pressure of the hand while it moves backwards and forwards in the process. We shall find it best to use the ball of the thumb for varying the pressure, for if the fingers are used there is a difficulty in preventing the

#### ♦ THINGS TO MAKE AND THINGS TO DO

appearance of ugly grooves across the roll. The length of the handle should be in good proportion to the bell. At the thinner end we should leave a small piece of material equal in diameter to that of a lead pencil or less if the size of the handle will not admit of this. Bore a hole through the top of the bell, and pass the small end through. The projecting piece is then pressed down on the inside as at G. A few deft strokes with the thumb will unite the two parts.

We shall probably find the match-holders illustrated the most interesting and effective models yet given. Of course, they are only models, and are not intended for practical use, but in them there is much that can be

learnt of the art of modeling.

To get the best results, there must be shown taste and feeling in the proportion of the parts, and the whole must be brought to a nice degree of finish. Each model consists of a tray, to which is attached the cup for matches, and each is made in two parts. Let us take number I first. The base is square, and it has edges at right angles to it. These edges are themselves curved. It is formed from the flat disk of the earlier exercises. Make the disk in the manner already described, taking care that the edges are pressed out quite thin. It is best to do the thinning out while the disk is revolved between the fingers and thumbs. Now bend up one edge, taking one of the four divisions, which we call seg-

ments, see sketch B, and this will give the appearance as shown in the little sketch at A. The corners may be shaped by gentle pressure of the little finger between each two edges as they are turned up into their positions. The cup for the matches is made in exactly the same way as the bell part of the second model, with this difference—that the top edge is prevented from spreading outwards while the hole is being made. In joining the cup to the tray, the cup is pressed on the raised portion of the centre of the tray, and the two are united by smoothly stroking the two round with the forefinger at their place of contact.

The second match-holder is more difficult, for from the circular disk six equal turned-up edges have to be made to form the tray. This will give what is called a hexagonal shape, as shown at D. If we are doubtful of being able to bend the six edges truly without guiding lines, as at C, we may mark on our disk the hexagon, as shown at D. After the edges are turned up, each one is bent slightly inwards. The tray is now ready for the cup. This is made in a similar manner to that of the first model.

At E we can see the shape to which it should be brought, and the top may be either left plain or scalloped, as in the photograph. The scalloping is done by pinching out the six divisions to the shape, as shown in the sketch plan marked F.

#### A WORD GAME WITH SKITTLES

AN interesting word game can be played with skittles or ninepins. We print on each skittle, with either ink or chalk, letters of the alphabet, no letter appearing twice on the same skittle. It is wise in writing the letters on the skittles to

letters on the skittles to giverarely-occurring letters, like q, x, z, only once, and to make up the necessary number of letters with those that are more often used.

When the skittles are ready, we stand them up in three rows, as shown in the picture, the skittles being about six inches apart, and the rows also six inches apart. The distance between our skittles and rows

must depend on the size of the ball. Six inches is about the right spacing for a ball the size of a tennis ball. Then we take the two balls, and, from a distance of about twelve



SKITTLES ARRANGED FOR PLAY

feet, we see how many ninepins we can knock over. Now we have to see what letters are on the ninepins that we have knocked down, and from these letters make up words, not using any letter more than once. Sometimes we shall find that we can

we shall find that we can scarcely make one word, while at another time we shall be able to make a great many. In making the letters on the skittles, we should see that there is at least one vowel on each skittle, or we shall find that we cannot do much. Every letter of the alphabet should be given at least once, but the additional number required to make up four on

each skittle, two on each side, may be any letters, so if we like we can give three or four a's, or e's, and so on. The player who makes most words in a given time wins the game.

# A CANDLESTICK FROM A GLASS OF WATER

A GLASS of water would not strike one as being a very suitable holder for a lighted candle, and yet by a simple arrangement it may be made into quite a serviceable candlestick.

The glass should have water poured into it for about three-quarters of its depth. A

piece of an ordinary wax candle is then taken, and a nail stuck into its lower end in the same line with the body of the candle. The nail is for ballast, and in choosing it care should be taken that the nail is of such a thickness and weight as to cause the candle to float with a quarter of an inch above the water-line.

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## STORY-DICTIONARY IN ENGLISH & FRENCH

#### DICTIONARY

Accents means tones.

Accosted means went up to and spoke to.

Affligé means afflicted. grieved.

Astounded means amazed. astonished.

Banish means to drive away.

Compelled means forced.

Concerned means disturbed, troubled.

Délire means delirium.

Diffidently means timidly, bashfully.

En guise de means by way of.

Enthusiastic means excited about something that pleases us very much.

Exquisite means choice. fine

Extinguished means put out.

Habitait is the abitait is the past of habiter, to dwell, to live

means Incessantly constantly, without ceasing.

Induce means persuade. L'avoir tenu à l'écart means,

literally, to have held him out of the way.

Légère means light.

Melody means tune.

Penetrated means made its way into.

Rapprocher means to bring together.

Raves means speaks wildly and excitedly.

Repproaches means blames,

finds fault with.

Respond means to reply. To respond to applause is to play a piece over again.

S'échappent is the present of siechapper, to slip out. Se dirigeaient is the past

of se diriger, to direct or guide.

Soothe means to soften, to

Tout à coup means, literally, all at a blow.

Vient rompre means comes to break.

Virtuose means virtuoso, or

#### THE LOVE OF A BROTHER

The great violinist bowed his pelled him to respond.

But he shook his head. "I'm pondre. too tired," he declared, "to play another note.

As he stepped into his motor.

a boy accosted him.

"I beg your pardon, sir," he said diffidently. "But could you spare a few minutes to play something to my little brother?'

The man looked astounded. "He's very ill," explained the boy. "He doesn't even know us now, but he's so grieved seems unable to banish it from

n me?" said the violinist. vous ne viendriez jamais.
"Where do you live?"
"Mais toi, tu as en place

The boy told him, and in a few minutes they were on their way to the house where the sick boy lay.

At one of the windows a light

"That's the room," said the moment in the little garden. dans le jardin.

The man did not answer, and the little sufferer; the restlessin a deep sleep.

The man in the garden below watched till the curtains were fixé sur la fenetre voit une main softly drawn and the light légère en rapprocher les rideaux et extinguished, then he put his violin back into its case and replace son violon dans la boîte, at dispersit vanished in the darkness.

L'AMOUR D'UN FRÈRE

Le grand violiniste salua en thanks to the enthusiastic audi- guise de remerciements l'audience and ran down the plat- toire enthousiasmé, puis des-form steps. The door swung cendit l'escalier de la scène en to behind him, but through it courant. La porte se referma came the sound of applause so sur lui, laissant entendre des persistent that it almost com- applaudissements si persistants qu'ils l'obligèrent presque à ré-

Mais il secoua la tête. "Je suis trop fatigué,'' déclara-t-il, "pour jouer une note de plus."

Comme il montait dans son automobile un petit garçon l'accosta. "Excusez-moi, monsieur," dit-il tim idement, "mais pouvez-vous disposer de quelques minutes pour jouer quelque chose à mon petit frère?"

Le violiniste parut abasourdi. "Il est très malade," expliqua le petit garçon. "Il ne nous reconnait même pas mainteat missing your concert that he nant, mais il est si affligé d'avoir manqué votre concert qu'il ne peut en bannir l'idée de sa tête. his mind. He raves about it peut en bannir l'idée de sa tête.

incessantly, and reproaches us Il en parle incessamment dans
for keeping him away. The
son délire et nous reproche de
doctor says he must have l'avoir tenu à l'écart. Le docsleep or he will die, and I teur dit qu'il lui faut du sommeil thought that if I could *induce* ou, sinon, il mou rra, et j'ai pensé you to play to him just a que si je pouvais vous décider à little, it might soothe him. lui jouer quelque chose, les ac-He's mad about the violin. . . . cents de votre violon le calme-Mother said you'd never come. " raient. Ah! il est fou de ce "But you had more faith violon! . . Ma mère disait que me?" said the violinist. vous ne viendriez jamais."

"Mais toi, tu as eu plus de foi en moi?" répon dit le violiniste.
"Où demeures-t u?"

Le petit garçon lui dit où il habitait, et qu'elques minutes après ils se dirigeaient vers la maison du jeune malade. Une lumière brillait à l'une des "Voilà la chambre!" fenêtres. boy, as they paused for a dit le petit garçon, en s'arrêtant

Le virtuose ne répondit sien, the boy slipped away. For et le petit garçon s'esquiva. a while there was silence, and Tout à coup une douce mélodie a while there was silence, and Tout à coup une douce mélodie then suddenly the stillness was vient rompre le silence de la nuit. broken by an exquisite melody. Les notes s'échappent les unes Note by note it fell, till the air après les autres, remplissant l'air was flooded with its sweetness. de leur charme. Elles pénètrent It penetrated the sick-room, dans la chambrette, apportant la and brought joy and peace to joie et la paix au jeune patient; l'agitation cesse, et les paupières ness ceased, and the tired eyelids languissantes de l'enfant se ferdrooped till at last they closed ment enfin sous l'action d'un profond sommeil.

L'artiste dont l'œil était resté

et disparaît.

# HINTS AND TRICKS FOR ODD MOMENTS

#### THE MYSTERIOUS CUBES

HERE is a curious design. Let us look carefully at it, and say whether we can see three cubes with their right-hand sides hidden and their left-hand sides showing black, or three cubes with their left-hand

sides hidden and their righthand sides showing black. In other words, are two cubes resting on one cube, or is one cube resting on two? While we are looking at the picture and trying to answer the questions, we shall probably get very



shall probably get very mixed in our minds, for at first the cubes will seem to be in one position and then they will suddenly seem to change their position.

#### A TOY TO DISGUISE THE VOICE

A SIMPLE little instrument can be made out of a piece of bamboo, which will enable us to disguise our voice, so that our friends will not recognize it. We take a piece of bam-



piece of bamboo about the thickness of a walking-stick, and three or four inches long, and

remove any pith there may be inside. Then we cut a notch at each end, on opposite sides of the bamboo as shown in the picture. Over each end of the bamboo we stretch tightly a piece of thin tracing paper. Then, with a large pin, we prick a hole in each piece of tracing paper. The instrument is now ready, and we may begin our experiments upon our friends.

#### A LITTLE FOUNTAIN IN A JAR

THIS picture shows how we can make a little fountain in an inverted glass jar. Any kind of glass jar will do—one in which we buy pickles or jam, for instance. We take a small bottle about half the height of the jar, and fill it about three-quarters full of water. Then we cork it well with a cork in which we have previously bored a hole. Through the hole we pass a glass tube long enough to reach nearly to the bottom of the bottle. About an inch of the tube should project above the cork, and we should seal the cork to the bottle all around with soap

or wax, so that no air can get in. In a plate or tray we In place several layers of wet blotting-paper, and stand the bottle in the middle. Then we take the glass iar and, warming well, place it it. downwards mouth over the bottle In a few minutes the air in the jar, which was warm, will get cool



and so take up less room, thereupon a small

jet of water will at once spurt from the tube of the little bottle.

#### A DIFFICULT DRAWING TRICK

THERE is a drawing trick which seems simple, but is very difficult. Let us

take a book or board, and place on it a sheet of paper. Then, holding the board with the paper horizontally, let us stand immediately in front of a looking glass, and, looking in the glass, try to draw on the paper a square and its diagonals. Of course, we must not look at the paper itself or the pencil while drawing, but



only at the reflections in the looking-glass. It is surprising how difficult it is to get the lines at the right angles.

#### A HOME-MADE CUP AND BALL

IT is quite easy to make a toy that will answer the purpose of the well-known cup and ball.



cup and ball. We take a piece of wire about two feet long, and bend it as shown in the picture. Then we take any ordinary ball, or,

if a ball is not available, make one out of anything that is handy, and tie this to the wire with a piece of flexible string about a foot and a half long. The toy is then ready for use, and the game is to hold the wire by the handle, and see how many times we can swing the ball through the loop without letting it touch the wire. Any number of players can join in.

#### A LEG TRICK

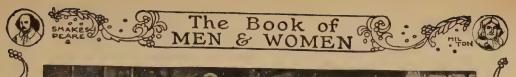
THERE are many simple tricks for boys which seem quite easy to do, but which,

when attempted. prove to be anything but easy. Let us put OHE leg on the table in the manner shown in the picture, taking care that our heel and the



back of our knee are both touching the table. And then let us try to untie our shoelace.

CONTINUED ON PAGE 6277.





#### Chippendale the carpenter at work, making one of the tables which have made his name famous.

# MAKERS OF BEAUTIFUL THINGS

#### THREE WORKMEN WHOSE WORK LIVES AFTER THEM

WE have all heard people say of some piece of furniture, "That is real Chippendale!"

It is only children, the great questioners of the world, who dare say, "What do you mean by real Chippendale?" They are answered, "It means that this furniture was made by Chippendale"; or "It is furniture made in what is known as the Chippendale period." but if a child goes on to ask, "Who was Chippendale, and what was the Chippendale period?" he may cause were, the continued from the continued fro

his elders some little difficulty.

Very often when we speak of an article of furniture which we believe to have been made in the eighteenth century, we call it "Chippendale," believing it to belong to the so-called Chippendale period. But we are in error in doing so, for the real Chippendale period was the time of Chippendale's life and work, and only professional dealers in old furniture, or those who make furniture their special hobby, can tell when we are right in so describing our treasures.

There is a good story about Homer. A puzzle-headed scholar, who had been studying long and hard to find

out whether the great poet really wrote the work which made him immortal, put it in this way: "Well, you see, the poem was not really written by Homer, but by another chap of the name!" Chippendale, who gets credit for work he never did, is to the collector of beautiful furniture very much what Homer is to the lover of literature. He looms out of the past as a great name, doing splendid work himself, and becoming, as it were, the father of most of the good work of the same sort which followed.

Furniture is not all of life, but it plays an important part in our home education. To live all our days among ugly furniture has a lowering tendency upon the mind. It debases our taste. We grow accustomed to the sight of ugly, inartistic things, and do not appreciate anything better.

This spirit of ignorance and indifference prevailed with regard to the entire home until the great artist, William Morris, set to work to reform taste, and make the home beautiful. Chippendale was an earlier Morris, in a smaller way, and his work was a miracle. Why should one little, un-

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known man declare that all the furniture being made, whether for the rich or the poor, was bad, common, trashy? What would happen to a little tailor, or some poor dressmaker, who tried to do the same thing to-day in regard to clothes? Chippendale had an artistic soul, and he must have had enormous courage.

Furniture for English homes had

We know nothing about his private career, not even the dates of his birth and death. All we know about him personally is that he was a native of Worcestershire, and that he went to London some time before 1750, and set up in business as a cabinet-maker and upholsterer in St. Martin's Lane, and that he died in the year 1779. He began to

make furniture in a new way. He did away with the stuffy upholstering for chairs, and made them with open backs; strong but handsome. He gave them true beauty by making them for use as well as for ornament.

Chippendale set his face against the ugly furniture with which the houses of the rich were packed. He carved chairs which could be sat upon; tables which could be used with comfort; side-boards which were really useful as well as beautiful.

And Chippendale's furniture was a tremendous success. It is wonderful that so great a change should have been welcomed in England as it was. If a king or some leader of fashion had ordered furniture of this type, it would have been easier to understand its success:

but here was a quite unknown man, forsaking all the old fashions, and creating a style for himself, delicate, carefully carved, and sometimes very elaborate.

Chippendale seems to have made a great success in business but he was not satisfied with that. He was not content to know that the houses into which his furniture went were beautiful. This cabinet-maker, with an artist's mind, set out on a mission to convert other cabinet-



THE CORNER OF AN ADAM ROOM

undergone many changes before the day of Chippendale and his school. The Saxon style was barbarous and rough; the Norman was elaborate and heavy; various Continental styles were blended into one for another fashion, with the result that all the original grace and beauty were lost, and only bad, jumbled copies remained. Chippendale found English furniture of this sort, and he set himself to reform the public taste.

makers and their patrons. In 1752 he wrote a book on his trade. It taught cabinet-makers how to make beautiful furniture, and it taught others to respect and admire such work. Many of Chippendale's designs were included in the book. Five years afterwards a second edition of the book was published, and three years after that a third ap-

peared. In this third edition, however, he unfortunately allowed drawings and designs by other people to appear, and his high reputation suffered from these. Probably it suffered a good deal more from a book of forgeries which was published after his death. In spite of this, however, Chippendale had a very great influence for good. A large number of his books were sold and studied, and they helped to change the whole art and style of furnituremaking.

We may have heard of an "Adam house," or of an "Adam fireplace," or "Adam furniture." Those of us who have troubled our minds in the matter know that Robert Adam was an architect, not a furniture-maker. None the less, Robert Adam was one of the

great figures in the movement for the reform of the English home. He was the son of a successful architect, and was born in Scotland in 1728. He studied at Edinburgh University and in Italy, and he had three brothers almost as gifted as himself. These were the men who built that part of London which, lying between the Strand and the Thames, was called the Adelphi. They built some of the finest houses in

London, and many in other parts of the country.

The point in Robert Adam's career is his skill in making beautiful the inside of houses. It did not satisfy the brothers merely to build a house which was handsome from the outside. They designed all sorts of beautiful tables and chairs, sideboards, fireplaces, book-cases,



THE CORNER OF A SHERATON ROOM

brackets, candelabra, pedestals, clock-cases, mirror frames, and so on. They designed plate and carriages; they even designed a Sedan chair for Queen Charlotte. They refined every branch of domestic art that they touched, and as they were among the first architects to make fine large windows to admit light and air, we, who know the great value of sunshine and pure air to us, should feel especially grateful to them.

#### ⇔ THE BOOK OF MEN AND WOMEN

With such a lead as Chippendale and the Adam brothers had given the country, it is hard to understand why afterwards there were so many shoddy homes in

only the furniture expert can distinguish their furniture from others of their time.

George Hepplewhite died ten years later than Chippendale, and, as he carried on business in London, they may have known one another. Hepplewhite is believed to have made a good deal of the fine painted furniture which is prized by collectors, but we usually think of him as a maker of furniture inlaid with beautiful woods.

All we know about Willian Ince and Thomas Mayhew is that they also lived in London in the eighteenth century, that they were partners, and that they published between them a book of designs. Of the two, Ince was the better cabinet-maker, and although his furniture



A CORNER OF A CHIPPENDALE ROOM

England, for the good work spread far and wide, and many artists in furniture now appeared. There were Hepplewhite, Ince, and Mayhew, among others, but

is more slightly built, it is sometimes mistaken for Chippendale.

Another maker of furniture who also lived in the eighteenth century, and one 

whose name is better known to us than anyone of the three, was Thomas Sheraton, who was born at Stockton-on-Tees in 1751, and died in London in 1806. He first came into prominence in his native town by a book on religion. In his first book he described himself as a mechanic, though he was really a carpenter and furniture-maker.



A Sheraton Clock.

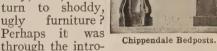
strange thing is that, as a furniture-maker, he was not successful. He had splendid ideas. but could not carry them out. He could design and teach others, ... but his proper work was not the actual making of the furniture which has made his name famous. He gave up furniture-making, and at thirty-as nine removed to London, where he at once started to publish works on furniture - making. He had studied Chippendale, and declared that, while that excellent man's designs were admirable for the time in which he lived, they were now out of date. He little dreamed what later generations would think of Chippendale furniture.

Sheraton was wrong in his judgment as to Chip-

pendale, but he was right in his judgment as to how furniture should be made in his own day. He was one of those wonderful men who do great things without formal education. He was by nature an artist, and he taught himself drawing and geometry, and, equipped, he set out to teach the world by means of books that he published. He cried out for still greater simplicity of design, a more severe beauty than Chippendale's, and a style far removed, of course, from that which Chippendale's had overthrown. In furniture, he said, we must have usefulness, not attempts at beauty alone; if the lines that we follow are sound, beauty is bound to result. It is harder, he declared, to reach successful simplicity than the highest development of the fanci-

ful French style which was then in fashion. All artists agree that he was right, and to-day Sheraton furniture is very highly prized -that is, furniture made from Sheraton's designs. The pity is that Sheraton's books never success from the money point of view. He died in poverty, yet good suite of his furniture to-day would sell for enough money to have kept him in plenty all his life.

These men were the chief of those who first strove in England to make the home beautiful. They laid good foundation, upon which careful technical artists have built ever since. Why, then, the return to shoddy, uglv furniture? Perhaps it was



duction of machinery. Population increased, and huge supplies of furniture were needed. In the factory, where machines did the work which careful craftsmen once did by hand, it was impossible to pay the same artistic, loving attention to work. The older men had only a few persons in their employ, and could oversee every bit of work done. There was no hurry, no rushing. The factory with its machinery altered that, 



and the work suffered. In the second half of the nineteenth century, however, a revival of interest in the art of furni-

ture-making set in.

In North America a renewed interest in furniture seems to have been aroused when travelers and dealers in antiques began to bring from Europe some of the beautiful things that they found for sale over there. This furniture was copied by the designers employed by furniture manufacturers, models were made from it to fit our needs, and there is now no reason why even the simplest home should be disfig-

ured by ugly things. In this country

we had no great furniture-makers whose names stand out like those of the men of whom we have been reading. nevertheless it is a mistake to think that there was no fine furniture made here in colonial davs.

When the first settlers came they had to be content with the simplest benches, tables and cupboards, but we must remember that at that time the same thing was true of the great majority of people who from which they

the best furniture made in England was brought over, for the houses of the governors, wealthy merchants and men of note, but space in the ships of those days was very limited, and even in the houses of wealthy people much of the furniture was of home manufacture.

Probably the first simple furniture of the log houses of the pioneers was made by themselves. Blocks took the place of stools for the children when they gathered round the hearth. An axe-hewn plank, laid on trestles, did duty for a table. Bedsteads were made of poles and the sides lashed together with rope. But these days soon passed. No sooner had

the settler been able to make a watertight house than he attempted to make better things. Home-made rush-seated chairs, carved chests made from handhewn lumber, and well made tables, gave added comfort to the homes of the pioneers. Besides there were carpenters and cabinet-makers among the settlers, who used their skill in supplying the needs of the communities in which they lived. Indeed many men who were not cabinetmakers, but whose fingers had become deft at other work, and who loved beauty. made furniture for themselves that was

very creditable in shape and finish. For instance, this writer has seen a handsome desk that was made by a weaver, in the end of the eighteenth century, and has since that time been in the possession of his descendants. The greater part of the colonial furniture, however, was made by cabinetmakers or by carpenters who copied the new styles of furniture that were brought over from Europe, in wood from the beautiful trees, that were felled in the forests around them.

Many of these colonial furniture-

came. In a short time, however, some of makers had not the tools or the skill to give to the things that they made the extreme beauty of line that we find in the best furniture that came from abroad. Most of them were not able to cross the fine line that divides what we call good from what we call excellent. Their tables and chairs and cupboards were just a little heavier in make and clumsier in outline than those from which they took their designs. Nevertheless men and women now treasure, with pride, antique furniture which they suppose to have been brought from the Old World, but which really was made in some village in the new country.

The colonial cabinet-makers were espe-



AN EIGHTEENTH CENTURY CHAIR

cially successful in making large pieces that were difficult to import. Handsome highboys, in which the wardrobes of a whole family of children could be stored away, were almost peculiar to this country, and when you see one you may be almost sure that it is of colonial make. The pictures on these two pages give an idea of the best type of furniture made in the seventeenth and eighteenth centuries.

We really know nothing of the lives of the men who made these things. In fact,

of Louis XIV, Louis XV and Louis XVI gives us an idea of the houses of the nobles who lived in the luxurious reigns of these monarchs. There are carved dower chests from Central Europe. There is a large room with old carved furniture made in England in Tudor times and in the reign of James I, and this is of great interest to us, for it shows us how the old homes of our ancestors were furnished at the time they left them. Then there is a large hall filled with fur-



These chairs were made in the colon es in the seventeenth century, and may well be compared with some of the old carved furniture made in England in Tudor days. The beautiful desk was also made in New England about the year 1800. Chairs and desk are now in the Metropolitan Museum of Art in New York.

the only cabinet-makers whose names we know are Duncan Phyfe, who has been called the American Chippendale, and possibly one or two more. But not only the furniture that these men made, but fine doorways, handsome chimneypieces, and graceful, curving stairways into which he had put all his love of good work, were the pride and joy of many a village Sheraton or Adam, and are now the pride of their owners, especially if they still belong to the families for whom they were built.

There is a very fine collection of old furniture in the Metropolitan Museum of Art. Rooms are furnished in Chippendale furniture, in Sheraton and in Adam furniture. French furniture of the time

niture made in America in the centuries of which we have been speaking, and we may study it ourselves and compare it with the furniture made in Europe. There are highboys and lowboys, tables, desks and chairs, cabinets and carved chests. and chests of drawers. The pictures on these two pages are photographs of furniture in this collection. Other collections of furniture, some of domestic manufacture, and some brought from abroad, are to be found in the colonial houses, throughout the country, which have been turned into museums. The mission furniture with simple lines, that is so much used nowadays, is copied from the furniture used in the Spanish Missions.

THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 6249.

# THE GREATEST MONUMENT ON THE EARTH



The Pyramids. 6,000 years old, standing in the sands as when Abraham must have seen them.



The six-mile avenue of acacia trees leading from outside Cairo to the Pyramids.

Upper picture copyright by Underwood & Underwood.

# The Book of ALL COUNTRIES



Old Cairo, with the tombs of the Caliphs, and the Citadel in the distance.

# THE GREAT SIGHTS OF EGYPT

THE world has made haste continued from 6105 since Pharaoh died, but nothing more wonderful has happened under the sun than the change by which we may sit reading THE BOOK OF KNOW-LEDGE in New York on Monday, before another Monday be in London, payer

before another Monday be in London, and on the following Saturday may cross the desert at Thebes, and walk among the Tombs of the Kings. In one week we may walk on the ashes of two dead empires; we may look on the ruins of Rome and walk among the ruins of Egypt. Between one Sunday and another we may sit in the shadows that fall from all that is left of the palaces of Cæsar and the temples of Pharaoh. We go six thousand years back in six days.

It is strange to arrive after so swift a journey from the New World in such an old corner of the world as Port Said, where the traveler for Cairo parts from the traveler for India. The ship sails on its way to India, up the Suez Canal into the Red Sea. The passenger for Egypt takes train for Cairo, and the journey takes about four hours. And as he goes he catches glimpses of the canal here and there, and peeps of some of the queer corners of Egypt. At last, less than two weeks after leaving his port, he is in Cairo.

Nothing that the traveler has ever seen is quite like Cairo—if he has never been to India, or Damascus, or Constantinople. The color of Cairo is something that no one ever forgets. The panorama of human life which

never ends; the tens of thousands, hundreds of thousands, of lives which nothing seems ever to perturb; the glow of the city in the sun from the height of the Citadel, with its miles of domes and minarets; and the river which brings life to Egypt winding in the background; and far beyond, ten miles and more from where he stands, the Pyramids and the desert, make an abiding impression on the traveler's mind.

Cairo itself is wonderful. Only a great artist or a great writer could hope to give you some suggestion of its color and its humanity. You would not be surprised if you were told that in those bulrushes Pharaoh's daughter found Moses; your surprise would be that Moses was not there. You may fancy that yonder Arabs in the desert are Joseph's brethren; for all the change that has taken place they well might be.

Hawks fly past you as you walk in the street, buffaloes draw carts and ploughs, white donkeys and black ones

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with blue necklaces bear half the burdens of the town. The faithful Mohammedan prays in the field; the unfaithful cries "Backsheesh!" as you pass. The women hide their faces behind thick veils; the children alone seem even as you and I.

#### THE GORGEOUS BAZAARS PACKED FROM MORNING TILL NIGHT

The wonderful bazaars can never be described. They are packed with things to eat and things to wear. A host of busy folk, tailors, jewelers, polishers, shoemakers, coffee-grinders work in the doorways or the open shop fronts. The ancient streets of this old part of the town are full of busy life and packed with gorgeous color. Even the pavements of the dirty streets provide a working place for merchants.

At every turn some little group is busy roasting chestnuts on the curbstone even at midnight; making coffee on the pavement for the passers-by; displaying their rings of bread and plates of strange

confections on the ground.

Hear the cackling hens in the shops, the stray sheep and goats in the busy streets. Feel the misery of these happy people. Smell their streets and shops. Escape, if you can, from the heap of fish in that window, from the basket of onions in this, from the carcases in that butcher's shop. Turn the corner and see their tobacco shops, the daintiest imagin-Step inside their mosques; put your feet into yellow sandals and see them at their prayers. Climb the steep hill to the Citadel and see the glory of Cairo, the wonderful, unmatched, and unforgettable panorama of a hundred square miles of fertile plain and yellow sand.

THE SCENE UPON WHICH THE SUN HAS SET FOR CENTURIES AND CENTURIES

See Father Nile flowing, as he has flowed ten thousand years, still bearing a prehistoric craft past great palaces and banks lined with palms; with the dim background of the distant desert rising against the sky, the great Pyramids of Ghizeh, ten miles distant, plainly seen, and those of Sakkara, more distant still, looming beyond.

Stand here on the Citadel and watch the sunset over it all, and remember that the sun has set over it for more centuries than you can count years, and that in the plain lying before you empires have been born, empires have been lost.

People the arena with great people of antiquity of whom we have learned— Julius Cæsar, Mark Antony, Cleopatra, Moses, and the Pharaohs; and then walk slowly down the hill, see the human relics of this greatness, and wonder what life and the world mean. Take a carriage at the bottom, and drive ten miles. Three miles bring you to an avenue lined with trees—"the avenue that never ends," and about you are oranges, bananas, and dates in the gardens, and buffaloes at work in the fields, led by men in long robes.

#### THE GREAT SHADOW THAT CREEPS ACROSS THE SAND

Ahead, just in front of you, at the bottom of the way, stand the Pyramids. A mile goes past, and then another, and another, and still, in front of you, these great things rise. Then at last the desert, the greatest structures that were ever built in stone, and the strange, wonderful Sphinx.

We are at the Pyramids, one of the most famous places in all the earth, and we watch the shadow of the Great Pyramid—the greatest of the three creep along the sand. The sun shines down on it to-day as it shone on it when Abraham saw it, and Moses was brought up almost beneath its shade. The moon looks down on it to-night as on that night when a mother brought her Child down into Egypt to flee from the wrath of Herod.

#### THE USELESS LABOR OF A HUNDRED THOUSAND SLAVES

The Great Pyramid is the greatest monument ever set up on the earth, and the only monument on the face of the earth which looks to-day, at any ate from a distance, almost exactly as it must have looked 6,000 years ago. We sit in the sand and gaze at it with

For twenty years a hundred thousand slaves worked to build this single pyramid, which is the greatest of the three that rise from the sand near Cairo, and was built to hold the dead body of a king. It is nearly three times as large as St. Peter's in Rome, and fifty feet higher. Its foundations are set in thirteen acres of sand, and the stone it contains is nearly 90,000,000 cubic feet, or enough to make a pathway, a foot wide, twothirds of the distance round the earth. 

# CAIRO AND HER STRANGE BAZAARS



Cairo, the ancient and modern capital of Egypt, with the Pyramids in the desert beyond.





A confectioner's and a fishmonger's shop in the famous bazaars in the old part of Cairo.

# THE LIFE OF AN EGYPTIAN BOY



The great Arab university at Cairo, where thousands of boys study the Koran all day.



Arabs drawing water from the Nile with the schadouf, a sort of see-saw with buckets.

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# THE RIVER THAT GIVES LIFE TO EGYPT



CAMELS ON THE BANKS OF THE NILE AT ASSOUAN



WATER-CARRIERS FILLING THEIR SKIN BOTTLES FROM THE NILE

#### THE DARKNESS INSIDE THE GREAT PYRAMID

Six hundred miles up the Nile is the great Assouan Dam, which holds back enough water to make the desert of Egypt blossom as the rose, and this huge dam has just about a quarter of the quantity of stone that is piled up in the

great pyramid!

It is hard to understand the feeling which leads the traveler to climb the pyramid. The climb is perilous and difficult. It takes hours, and the climber needs the help of two or three men. It is easier to persuade oneself to go inside, but he who has once been in will surely never wish to go again. A small hole, which faces toward the North Pole. leads into a long, low, descending passage, through which three Bedouins lead us into this dark and terrible place, and we fumble on hands and knees, and climb up slippery slopes, and walk along narrow ledges, and are slung through holes until the darkness and the weirdness are almost more than we can bear.

With a sigh of relief, we reach the little chamber in the heart of the Great Pyramid, with the tomb of the builder in the centre of the floor and with millions of tons of masonry above our heads—enough of it, men say, to have hidden away miles and miles of galleries such as we came through, and more than three thousand chambers such as this

in which we stand.

#### THE RIDE TO THE PLAYGROUND OF MOSES

An overwhelming thought it is, a terrifying place it is to stand in, and we would give much for a breath of the air that lies hundreds of feet away beyond these dark winding passages. Our Arab guides know it, too, and this place and this moment they choose to extort from their victim as much money as he will unwillingly let go. And the traveler pays, takes up his candle, and gropes his painful way back to the desert and

He is glad to mount his camel, to ride quickly by the Sphinx, which, if he is wise, he will come again to see by moonlight; and on he rides, across twelve miles of sand to Memphis, through the groves of palms which rise perhaps from the playground of the little boy Moses, whose home was in Memphis in the days when it was a great city. This is one of many wonderful rides that the traveler takes from Cairo, and always he comes back to Cairo as to another world.

But it is not Cairo, even with the Pyramids, which most moves the traveler in Egypt. He is loth to leave it, glad to come back to it, and never for a moment lets the spell of it go. But Cairo, after all has been said, is of this world, and there are great cosmopolitan cities elsewhere. It is when he leaves the train, which brought him from Cairo, at Luxor, and wanders through the ruins of the great structures of another time, that the traveler feels that he is in another

world. The vastness of the halls and

temples, the size of the columns and

statues awes his mind; the sadness of

# THE RUINS OF AN ANCIENT CAPITAL

their ruin oppresses his spirit.

A few miles farther on lie the ruins of Thebes. We wander through them in the warm Egyptian sunlight, and try to imagine how the city looked when the buildings stood as their builders had left them, and the colossal statues gazed down on throngs of worshippers. Thousands of years have come and gone since they were built; many centuries have passed since they were overthrown and buried beneath the desert sand. descendants of the men who built them dig down to find their ruins, and as we listen to the thud of pickaxes, and watch the plodding workmen at their task, we can fancy ourselves back in those far-off days when swarms of workmen toiled to raise the giant walls.

We fling our guide-books down, for we care nothing for the height of columns, or the size of halls, as we remember that here sat Rameses, that here came Alexander, that here was the heart of the world in an age of which his mind cannot even think, that the stones rising to the sky were placed there by the greatest builders that the world has ever known, thousands of years before the foundation stones of the Capitol, at Washington,

were laid.

Across the river lie the mountains where the kings of Thebes made their tombs, like which there is no other tomb on earth. Think of the most impressive place where the mortal remains of a king of men can be laid—of the heart of Livingstone, in his own Africa; of Cheops, in \$\ldot\delta

# WHERE MOSES PLAYED AS A BOY

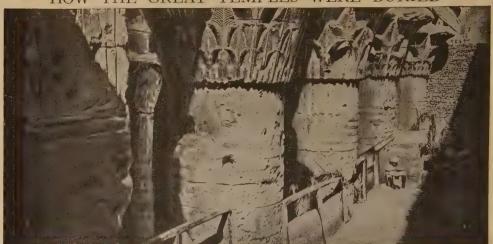


A desert oasis in which majestic palm trees look down upon mud houses.



The glory of the towering palms at Memphis, where Moses is said to have played. 

#### GREAT THE

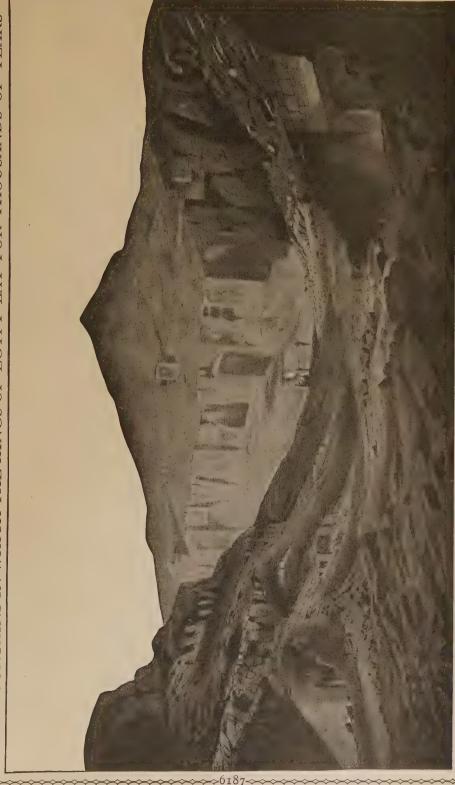




THE BEAUTIFUL TEMPLE HIDDEN IN THE EARTH FOR CENTURIES AT ESNEH

These pictures show how the temples of Egypt were buried in the earth and dug out again. The road outside the temple at the village of Esneh, on the Nile, is now level with the pathway seen at right of top picture, but when the temple was built the road must have been level with the floor, as below. Inside the temple has been excavated; outside is still covered by earth. The way in is down the steps.

THE MOUNTAINS IN WHICH THE KINGS OF EGYPT LAY FOR THOUSANDS OF YEARS



FOR CENTURIES THE KINGS OF EGYPT LAY HIDDEN FROM THE WORLD IN TOMBS CUT DEEP DOWN IN THESE MOUNTAIN FASTNESSES, NO ONE DREAMING OF THE WONDERS HIDDEN HERE UNTIL A TOMB WAS PIERCED ONE DAY BY THE ACCIDENTAL STROKE OF AN AXE.

# WHERE THE KINGS OF EGYPT LIVED



The Nile at Luxor, once known as Thebes, the seat of the empire of the Pharaohs.



The splendid columns of the ruined Temple of Luxor, as they stand to-day.

the terrible loneliness of his Great Pyramid; of Cecil Rhodes, at the summit of the mountain from which he looked down upon a continent, of Mohammed at Medina; of Napoleon; of Washington in his country home; of Nelson, of Wellington, in the heart of the empire that they helped to build.

# THE TOMB THREE THOUSAND YEARS

And none of these resting places of immortal men can be likened, for an impressiveness that is overwhelming, for a great silence that can be felt, to the graves

of the dead kings of Egypt.

Hundreds of feet deep in the mountains, through chambers cut in the solid rock, within sculptured walls bearing the history of his life, as rich in color as if the paint had dried upon them yesterday, Amenophis II. lies in his coffin as his people left him there three thousand years ago. In a smaller chamber, among the dust on the ground, lies a beautiful woman, her black hair falling over her shoulders, who played, we are sure, with the princes in the king's palace 1,500 years before Jesus Christ-was born.

From Luxor we take boat to Assouan, to see the great Nile dam, and at Assouan our boat turns round and sets our faces homeward. Six hundred miles down the Nile is Cairo, and slowly down the great river we go. Here on the banks as we pass is Egypt at home. Here are the mud huts of to-day; here are the

broken temples of yesterday.

In no other place in the world can so much change, so many varied scenes, so many aspects of life itself, so many types of people, such an endless transformation of human and natural things pass in so short a time. It is like a cinematograph, throwing upon a screen, all in an hour, every kind of life in every part of the world in any age that has ever been.

THE VAST ETERNAL THRONG THAT LIVES We sit on donkeys or on camels, or on the sunny decks of steamers, or stand in mud houses, or lie under palm trees, or rest in great temples, or look out from trains, and see this great world move past—a vast, eternal throng. If you turn to your map of Egypt, you will find, lost on the banks of the Nile among sugar-canes and palm trees, a place called Edfou. We have just left it, climbing to the height of its great temple, tramp-

ing its dusty streets, and parching with thirst at the very sight of its mud town.

In the background from our boat stands the temple as the Ptolemies left it. A dusty lane leads from the landing-stage to the mud-built town, with the minaret outstanding to remind us that the things of this world pass away. Women and girls are coming with their water-pots, which they carry on their heads as they did when these temple walls were built.

# THE SIGHTS AND SOUNDS IN THE FIELDS OF EGYPT

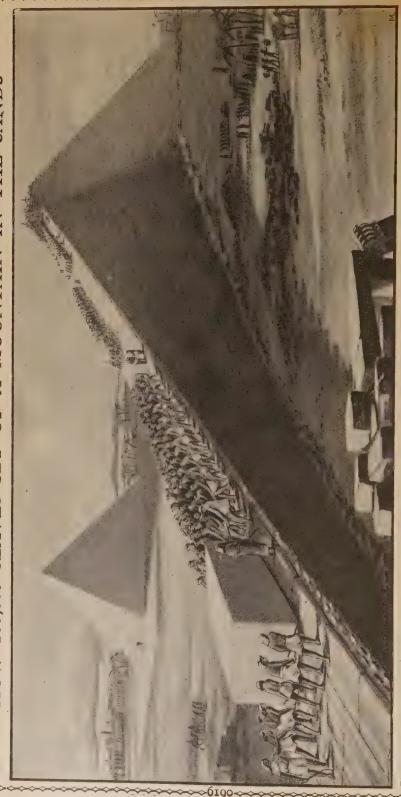
At the riverside a group of women are busy washing their robes, and spreading them out on the rocks to dry. Behind them stand a dozen donkeys, with donkey-boys and dragomans, half a dozen boys asking for English books and one or two for backsheesh, and a motley crowd of folk—white, brown, and black—in black robes, white robes, and blue robes; in black turbans, white turbans, and blue turbans; and red fezzes.

In the shade of the hill sit four splendid Arabs. Over the hill come two camels, laden with stuff from the quarry where a dozen natives are excavating an ancient temple. In a moment the camels are lost in a cloud of dust, which comes and goes as if it were a speck in a hurricane, though the air is as calm as the Nile. Along the bank the shadoufs are working —the quaint and clumsy water-carrying instruments which still, as for thousands of years back, carry the waters of the Nile into the fields around. In these fields buffaloes are ploughing, sugar-cane is growing, palm trees rise in the distance; and beyond it all lies the range of mountains which never break.

As our boat leaves this stopping-place, an Egyptian gentleman, the Sheikh of his district, lands, amid the salaams of the people; the crew break out into the plaintive hymn which marks the setting off of every boat and its arrival; and our steamer looks ahead, to the sailing boats that look like poetry far up the placid Nile. And on, and on, and on we go, through the wheat-fields on one side and the desert on the other, with no sign of life save the naked men at the shadoufs, and now and then a mysterious figure in a flowing robe. It is as if all strife among men were dead, and peace and happiness for all had come.

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# HOW 100,000 SLAVES SET UP A MOUNTAIN IN THE SANDS



When the first stones had been fixed in their place a bank was made up to the top, sloping down to the level of the ground. Up this slope the next great stones were dragged, and when these had been fixed the slope was carried to the top of them. So, as the pyramid rose, the sloping way rose too, until it became a wonderful road for thousands of slaves to walk along, dragging the granite behind them. The road was greased to make the dragging The modern world has gazed with amazement at the Pyramids of Egypt, and wondered how such gigantic monuments could have been built in the days of the world's childof the stones easier, and behind each stone were slaves with levers to help. By the time the pyramid was finished, this roadway must have been miles long. When at last the pyramid stood complete, and the final stone had been placed on the top, the inclined plane was taken away. It took 100,000 men thirty years to build this Great Pyramid. But we are almost sure that they were built as shown in this picture. hood.





## THE UNKNOWN HERO

N the banks of the CONTINUED FROM 6134 the Rhine, just above the little town of Caub, is the castle of Jutta's Rock. Jutta was the beautiful sister of Philip, the lord

of Caub, and she was queen of the tournament at Cologne when

the German heroes rode the lists and showed their courage before the eyes of their ladies. No knight, however, carried her colors, though many wished to win that honor. None had been able to touch her heart, but her brother hoped that one of her suitors would win her by some striking act of bravery in the tournament.

But, famous as the warriors of Germany were for horsemanship and strength of arm, none was able to distinguish himself that day. A tall knight, with an English device inscribed on his shield, bore down every warrior who entered the lists against

him.

All the ladies were deeply interested in the strange knight, and when Jutta saw his eyes fixed on her, her heart began to beat. The stranger won the prize, and, to the great joy of Jutta, he reined in his warhorse

by the place where she sat.
"I love you!" he said. "Trust me! Give me the glove you wear, and I will return with it in three months."

"Cannot you stay?" said Jutta anxiously, giving him the glove.

"No, my dear lady, ' said the "I have come unknown knight. to Germany on a great enterprize,

He spurred on his horse and rode into the night. For three long months Lady Jutta hoped for her unknown hero's return, always refusing to let another knight carry her colors in the lists. Time passed, and still he did not come. Altogether for six months Jutta waited for news of her unknown lover. She heard that some English knights had been slain in a

fail."

and if I delay I shall

Cornwall as Emperor of Germany. "He must have fallen in the fray," she kept saying, as the days went by. And at last she shut herself in her room, and refused to see anybody.

fight over the election of Richard of

One afternoon the Emperor of Germany called to claim her hand in Jutta returned word marriage. through her brother that she had resolved to retire to a convent. But the emperor insisted that she should see him, and Jutta came slowly into the hall.

"Jutta," said the emperor, handing her a little white glove, "have you forgotten the poor English knight?"

The emperor raised his visor, and. with a cry of gladness, Jutta ran into his arms. Her hero was Richard of Cornwall, brother to King Henry III. of England! After a long struggle he had been crowned Emperor of Germany. He now came to share his high honors with the maiden whose heart he had won as an unknown knight, and Jutta was made Empress of Germany.

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### THE FIGHT WITH THE DRAGON

As the young knight rode through the streets of Rhodes, thousands of voices sang his praise. For behind him he dragged the lifeless body of the dreadful monster that had filled the land with terror and dismay.

"Open the gates," cried the crowd, leading the young knight to the monastery of the military monks called the Hospitallers of St. John. "He has

killed the dragon!"

The gates were flung open, and the people followed the hero into the council chamber, where the Grand Master of the Hospitallers was sitting with the other officers of the Order.

"What is the meaning of this?" said the Grand Master, in a stern voice.

"I have killed the monster that made its den in the Chapel of the Three Kings of Cologne, and prevented pilgrims from

visiting it," said the knight.

"My son," replied the Grand Master, still more sternly, "you have done great wrong. After five of our bravest knights lost their lives in trying to kill this dragon, I forbade any man of our Order to attempt the feat that you have rashly undertaken. You have disregarded my orders. Speak! What is the first duty of a knight of St. John?"

"Obedience," said the young Hospitaller, bowing his head with shame at

the unexpected rebuke.

"You are a professed champion of our Lord, wearing the emblem of the Cross," exclaimed the Grand Master. "You have broken the law of your Order wilfully and rashly, and-

"Not rashly, my father," interrupted the young knight. "Hear my story. I went to a craftsman of my native town, and got him to make a life-sized image of the dragon. This I placed in a field, and trained my horse to approach it, and taught my dogs to attack it only where its skin was thin and tender. I journeyed back to the chapel, and, finding that the monster was sallying out of its den and slaying and terrifying the country people, I resolved to fight it at once."

"You should have first asked leave,"

said the Grand Master.

"There was no time," replied the young knight. "Men were being killed every day. None could stand against

it. Formerly it had only come out at night, but now the terrible monster was grown so bold that at noon-day he feared not to attack the peasants in the fields. I found the dragon sunning itself on the ground beside the chapel, and set my dogs on it. Then I charged at the monster, and tried to pierce its body with my spear. But the weapon broke against its scaly hide. Then I attacked the angry dragon with my sword. This, too, broke in my hand, and I was thrown to the ground, and the horrible beast opened its jaws to devour me. But my dogs attacked the monster where the skin was unprotected by scales. Roaring with pain, the dragon turned from me and tried to drive away the dogs. Then I drove my broken sword up to the hilt in its body, and it fell to the ground, slain."

Moved by the young knight's story, the crowd made the council chamber ring with their applause. Even the Hospitallers were won by the modest air with which he related his wonderful achievement, and they begged that he should be given the crown of valor. But as the people were carrying the young knight in triumph through the hall, the Grand Master called for silence, and said:

"You have become the enemy of your Order. Take that holy cross from your breast, for you are no longer worthy of wearing it. It is the emblem of the spirit of Christian humility and obedience. You have slain the dragon in order to win idle glory, and a more terrible monster now lodges in your proud breast—the serpent of self-will, disobedience, and worldly pride."

The crowd raised a cry of protest, but the dragon-killer meekly obeyed his angry superior. Silently, and with downcast eyes, he took off the dress of his glorious Order, stooped and kissed the hand of the Grand Master, and slowly and sadly walked away with bowed head.

But as he reached the door the Grand

Master called him back.

"Come, my son," he cried; "you have now won a harder battle than your fight with the dragon, for you have conquered yourself. Take back the Cross of the Hospitaller Knights. You have gained it by heroic meekness of soul!" <

### THE SONG THAT FOUND A KING



beggar laughed, and, approaching closer, held out his weapon for him to look at. It was only a simple lute such as minstrels used in those days to sing to.

The man himself was tall and young and handsome, with long, fair hair; but his cheeks were lean and worn, and

his dress was a flutter of rags.

"My good sir," he said, taking off his cap with an air which would have been dignified in a lord, but was ridiculous in him, "I do not want to fight you or beg from you. At least," he added, "I only want to beg a little information. That will cost you nothing. Is there a castle near by where I could get food and lodging in return for a display of the gay science?"

"The gay science?" exclaimed Black Hans, looking at the miserable figure before him. "What is that?"

"Oh, you boors! You ignorant German boors!" cried the ragged minstrel angrily. "The gay science is the name of the new sweet poetry invented in sunny Provence. Have you never heard of Richard, the poet-king of England, who has made the gay science known from London to Palestine?"

"What about Richard of England?" the moneylender suspiciously.

"Are you looking for him?"

"What has a beggar like me in common with a king of England?" said the minstrel, with a laugh. "I am looking for food and lodging, my friend. likely to get them about here?"

"Well, there's the Castle of Durenstein about a league up the river," said Black Hans sullenly. "But doubt," he added, as he moved rapidly away, "if they want any of your new French fashions of singing and playing."

When the money lender was out of sight, the minstrel threw his lute away and flung himself on the ground, under a tree, and covered his face in his hands

and wept bitterly.

"My search is all in vain!" moaned. "Richard, my Richard, would give my life to find you and help to set you free! But it is impossible! You must have been shipwrecked on your way from Palestine, and the tale about a secret prison is a false report made by your foes to hurt your friends and waste their lives."

For a long time Blondel lay flat on

the ground, choking with sobs. He was a young knight of Picardy, who, like many other great lords of his time, had taken to the pleasant life of a high-born minstrel. In a tournament of song in Southern France he had met Richard, and won from him the prize for singing; and, instead of disliking Blondel for excelling him, the brave and largehearted King of England had given him lands and made him his companion. They had lived together, composing songs in the new fashion and setting them to music and singing them to one another.

As Blondel met with an accident, he could not go with Richard to fight with him in the Holy Land; but when a rumor spread in Europe that the king had been captured and secretly imprisoned on his way back to England, the brave minstrel-knight resolved to venture his life in finding where his king was hidden.

"It's no use crying and moaning," he said at last, rising up and looking about for his lute. "Tears will not find his prison or unlock the gate. And, first of all, I must get some food, for I am well-nigh starved to death."

He had been wandering a long time since he set out from Picardy on his search, dressed in his brightest and gayest robes. Now his shoes were worn from his feet, and his fine attire was torn into tatters. In his own country the minstrel was always an honored guest, and had his seat at the lord's table and the best of food and lodging. Now as he went on he found that instead of being received honorably in the great halls of the castles as a minstrel-knight, he had to slink into kitchens, where his songs usually won for him a supper and a bed.

Walking along the narrow gorges through which the Danube foamed and roared, he came into the wide plain of

There, where the great river widened, was the Castle of Durenstein, rising from the top of a hill and surrounded by a wall of rugged rocks. At the foot, by the bank of the river, was a little village. Blondel had enough money to buy some wine and bread at the inn in the village: then, refreshed by his meal, he wandered for some time around 

the castle singing at the top of his voice.

In a low, dimly-lighted room in the castle-keep a tall, powerful man, with a finely-cut face and a head of auburn hair was restlessly pacing up and down the room, talking passionately to himself.

"Two years! Two years!" he was saying bitterly. "And not a single man in all my dominions has tried to set me free! I shall go mad if I think much more about it. There's John, my

"Let me try my hand at the gay science again!"

He walked up and down his prisoncell, turning over phrases and fitting in rhymes, and at last he took up his lute and began to sing softly to himself these lines, which are still remembered as King Richard's:

Know, men of England, Anjou, and Touraine, And all my knights with noble hearts and brave.



The Castle of Durenstein, where King Richard was imprisoned, as it appears to-day.

brother, and the Earl of Northumberland, and Longchamp and Pusey, whom I have loaded with honors and riches. Philip of France, too, who swore when he left Palestine that he would be my friend. They must know that the Duke of Austria is keeping me a prisoner against all the laws of God and man merely to obtain money. But will they give a penny to ransom me? Not they! They have got hold of my kingdom, and they mean to keep it, and they will let me die here like a rat in a hole."

For several minutes he looked moodily out of the narrow slit in the huge walls that served him as a window. Then on a sudden he laughed aloud, and said: Your friendship, love, and duty now are vain To free me from the bondage of a slave.

Remote from consolation here I lie,
The wretched captive of a powerful foe,
And here in grief I languish till I die—
Die, and am buried where no man shall
know!

"That's a very good beginning," said Richard, recovering his gaiety. "I've learned a good deal about verse-making this year. If ever I should meet Blondel I do not think he will excel me again. Poor Blondel! I wonder what he is doing. Making love-songs for the fair ladies in Picardy, perhaps, but probably forgetting that he had ever a friend called Richard."

A fit of sadness again overcame the

imprisoned king, and he went to the narrow window slit and stared sorrowfully at the open country.

Suddenly he reeled back as though he

had been struck.

Someone was singing below, someone he knew, and the sweet voice pierced his heart. Nearer and nearer it came, as the singer, clambering round the outer wall of the castle, gradually approached the narrow window of his room, where the king listened like a man in a dream.

The words of the song came clear and ringing on the evening air.

If you were housed in a hut in the vale, And I were lodged on a hill on high, Would you sing to me as the nightingale Sings from a bush to a star in the sky?

It was the first verse of a song which Richard and Blondel had composed together many years before. None but these two knew of it, and Blondel was singing it to help him to find his king. He had sung it outside hundreds of castles, in the hope that the king would hear him and would sing back the second verse.

And now, when the minstrel had given up all hope, and was sitting beneath the castle wall, his eyes wet with tears, someone from a window above began to sing in a strong voice that shook with emotion:

If I were housed on a hill on high,

And you were lodged in a lowland pass, I would sing to you as a lark in the sky Sings to his love in her nest in the grass.

It was the second verse of the song which only the king knew! After all his efforts Blondel had at last found his king. Here in this castle he was imprisoned.

Leaping up with joy at his discovery, the minstrel sang the first verse again, to let the king know that he was still there listening. Then, careless whether he got a lodging for the night or not, he left Durenstein, and hastened through the darkness along the path which led for hundreds of miles across Europe to the English Channel. At night he slept on the rocky ground, and shivered in his rags. By day, stopping only to gather

such roots and wild fruits as would stay his hunger, he pushed on through the forest.

It was months before he reached England, but when he arrived there he sought out William Longchamp, the Lord Chancellor, who was still faithful to Richard, and in 1194 Richard of the Lion's Heart landed at the little English port of Sandwich a free man through

the efforts of Blondel

### THE KING'S THREE OUESTIONS

FREDERICK II., known as "the Great," King of Prussia, throughout his reign took the greatest interest in the improvement of the Prussian army. For the guidance of his generals he wrote a number of works covering the whole science of war, and he was very fond of his guards, and knew every one of the men personally.

Whenever he saw a new recruit, he used to call him from the ranks and ask him three questions: How old are you? How long have you been in my service? Are you satisfied with your pay and

treatment?

One day a young Frenchman joined the regiment, and as he did not know any German, he was taught the answers to the king's three questions in the order in which they always had to be

Not long after, Frederick caught sight of the young man but, unfortunately, on

this occasion he did not ask the questions in their usual order.

"How long have you been in my service?" asked the king.
"Twenty-one years,"

replied the

Frenchman.

"Twenty-one years!" said the king. "Then you must be very much older than you look. How old are you?" "One year," answered the soldier.

"Upon my word," cried Frederick, "one or other of us must be mad."

"Both," said the soldier, who had been taught that this was the proper answer to give to the king's third question.

The king, of course, flew into a great rage, and the poor recruit then explained the whole matter in French, a language that the king understood perfectly. Frederick laughed heartily, and advised the soldier in future to speak only a language he knew.

CONTINUED ON PAGE 6283.

# The Book of FAMILIAR THINGS

### WHAT THIS STORY TELLS US

No invention of our day means more to people who live in cities than the high-speed elevator. Without it our large cities would not be possible. If all the people who now live and work in large cities were forced to occupy buildings so low that the stairs could be climbed easily, the cities would necessarily be spread out over enormous spaces. Offices and homes would be so far apart that men could not do business as they do to-day. The modern elevator carries us swiftly, safely, and almost noiselessly, up and down, ten, twenty or thirty stories, and few give a thought to the wonderful machinery which helps us so much. We tell you in this story how the ordinary electric elevator works, and show you also a very common elevator which is worked by the power of water. Both are safe and swift. When you have read this story, you will be able to tell them apart, and to understand the machinery which moves them.

### HOW ELEVATORS GO UP AND DOWN

THOSE of you who live in a large city take the tall buildings, ten, twenty, thirty, or even more stories high, as a matter of course. If you have never seen the buildings themselves, you have seen pictures of them, and may have wondered how people can be found to fill them.

You have already been told in our book of the method of building, that the framework is of steel and supports the walls. Without this kind of construction, such buildings would not be built at all. If the whole of the great weight rested upon the walls, it would be necessary to make them so thick at the bottom that most of the lower stories would be a mass of stone, without any room for offices or shops. The walls could be made thinner toward the top, of course, but much space would be wasted.

But even when these high buildings are built they could not be used but for another modern invention. In some of them thousands of men and women work, the population of a town sometimes. How do they get to their offices so high up in the air? Only very strong and very active persons could climb twenty flights of stairs several times a day.

# THE ELEVATOR MAKES THE HIGH BUILDINGS POSSIBLE

Go into one of these buildings and you will see, behind iron or glass doors, Copyright, 1918, by M. Perry Mills.

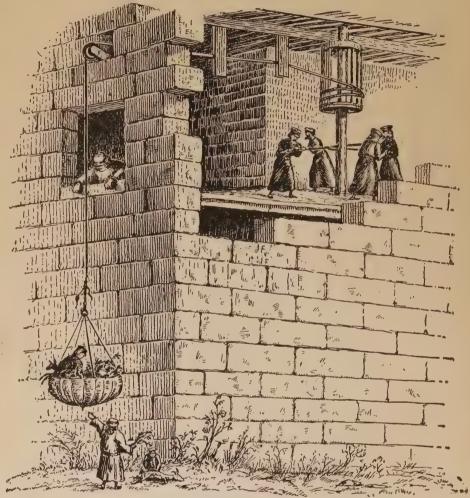
one, two, a dozen. or perhaps more elevators, depending upon the size and height of the building. A door is slid back, and you step into the car with other people, sometimes as many as twenty, the door slides shut, a lever is pushed, and up you go like an arrow. You are carried straight up, the length of a city block, in much less time than it would take you to walk that distance on the pavement. The doors are opened, you step out, and the car goes on, or else returns to the first floor.

Such is the modern high-speed electric elevator. But it was not always like this. From very early times men have felt the need of some sort of a machine to lift themselves or goods. In our first picture you see an early form of lifting machine. During the Middle Ages, as you have been told, there was little law and order in the world. The motto of the time was: "Let him get who hath the power, and let him keep who can." Robbery was a common profession then. Here you see a corner of an old monastery, which had no entrance on the level of the ground. Provisions and visitors were hoisted in the basket. Elevators of this sort are still in use, though not often to raise passengers. The bucket and windlass at the well really make a sort of elevator, though we do not think of them as such.

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After the steam engine was invented, elevators were raised by winding the rope upon a cylinder. You may have seen one working upon this principle, loading or unloading a boat, raising dirt from the foundation of a house, or lifting building material high in the air. Though they

and many of them are in use at the present time. One type is the plunger elevator, which is one of the safest kinds. A strong iron pipe is sunk into the ground, as deep as the building is high. A strong iron cylinder, which fits tightly, but smoothly, is placed in the large pipe



This picture was drawn from an old print which showed how some monks in an old monastery got in or out of their home. There was no entrance on the ground floor for fear of robbers, but monks, visitors and provisions were hoisted up to the opening above. Of course the wall nearest us was solid.

have no car, they work in the same way. These were not very satisfactory, for a man had to be employed to run the engine and another to look after the car.

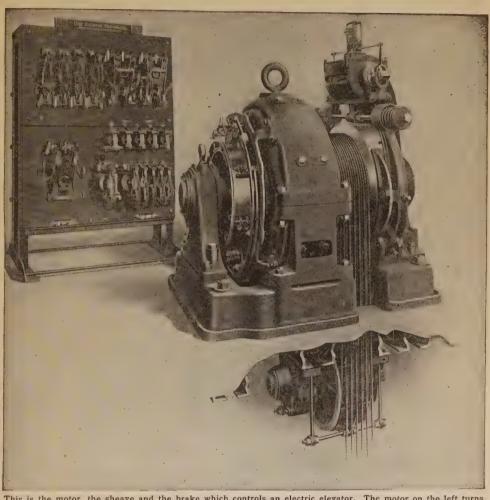
# THE POWER OF WATER IS USED TO RUN ELEVATORS

Men had learned the power of water by this time, and we soon see that use was made of it to lift passengers. The hydraulic elevator was soon improved, and the car is fastened on the top. In the pipe are two openings, one to let water in, the other to let it out. Now, if water, which has been compressed by a powerful pump, is let into the pipe, it will force up cylinder, car and passengers. When the car has gone as high as is desired, the water is cut off, and the car ceases to rise. When the operator wishes to descend, he opens the outlet

### TOW ELEVATORS GO UP AND DOWN

pipe, and as the water escapes the car sinks. All this is done from the car itself. You will see elevators of this kind in many buildings which are not very tall, such as department stores. They are very safe, for they cannot fall unless the pipe should burst, and then the water

rather hard to describe, but perhaps you can understand if you study the picture carefully. In all of these cars you will notice heavy weights hung in the shafts outside the cars. These are made to weigh almost the same as the cars, so that they would almost balance if the



This is the motor, the sheave and the brake which controls an electric elevator. The motor on the left turns the sheave in either direction as the operator decides. The brake helps to check the car, and the wire ropes support it. The idler sheave, around which the ropes run, is underneath the floor. The switchboard, behind, controls all the elevators in the building. Pictures by courtesy of the Otis Elevator Company.

could not escape very rapidly. When the pipe does not go through rock it is often surrounded by cement.

There is another type of hydraulic elevator which is more used than this. It has a cylinder and a plunger, too, but the plunger is connected with the wheels over which the rope goes, and is so arranged that when it moves a few feet it makes the car move many feet. It is

cars were let loose. The power, then, no matter what it is, has only to lift the load, and not the heavy weight of the car.

# ELECTRICITY NOW USED MORE THAN ANYTHING ELSE

Most elevators, nowadays, are run by electricity, and are of two kinds. One has a drum, or windlass, which is run by an electric motor. The rope which lifts the car is wound around this drum. This

kind cannot be used very well in a very high building, for the machinery would

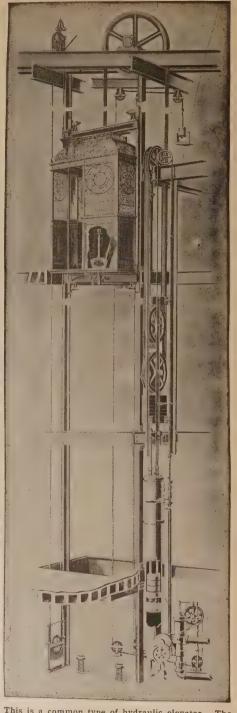
take a great deal of room.

Therefore, advantage has been taken of the fact of friction. The rope is run over a pulley, called a "sheave," then over another and then over the first again, making a complete loop. A rope wound like this cannot slip, for the greater the weight, the tighter the rope clings. One end of the rope is attached to the car and the other to the counter weight. The electric motor turns the sheave, and the rope passing over this and the second or "idler sheave" raises the car. The motor will turn the sheave just as rapidly in the opposite direction. The brake is on the other side of the main sheave. A switch in the car enables the elevator man to go up or down, slowly or rapidly, or to stop at once.

### TATHAT WOULD HAPPEN IF THE ROPE BROKE?

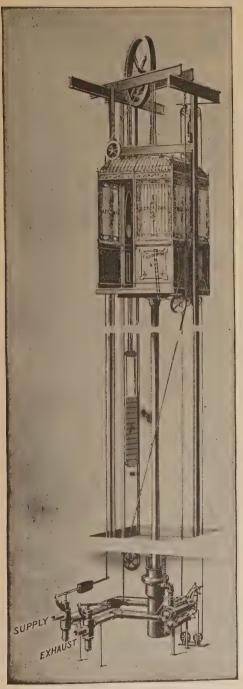
What if one of these cars should fall? This does not often happen. In the first place, though one wire rope is enough to sustain the weight, very often as many as six are used. It is almost impossible for all of them to break at once. Then, too, the brakes are set to hold the car if the power is cut off. There are still other things which help to make the car safe. On the bottom of the car are powerful steel jaws, which catch the rails between which the car runs if it begins to run too fast. These devices would seem to be almost enough, but the makers of elevators have invented something else. At the bottom of the shaft are two oil cushion buffers. If the car should strike them, the oil would be forced slowly into other chambers, and the shock would be broken, just as when you jump upon a feather bed. Sometimes the bottom of the shaft is made very tight, and the car fits closely. Then if the car comes down rapidly, the air cannot get out, but is gradually compressed and pushes back against the bottom of the car. Once a test was made to see what would happen. Everything which would stop the car was removed and it was allowed to fall. It dropped like lightning at first, but as it drew near the bottom it began to go more and more slowly, until finally it reached the bottom without breaking a single one of a basket of eggs which had been left on the bottom of the car.

THE NEXT STORY OF FAMILIAR THINGS IS ON PAGE 6203.

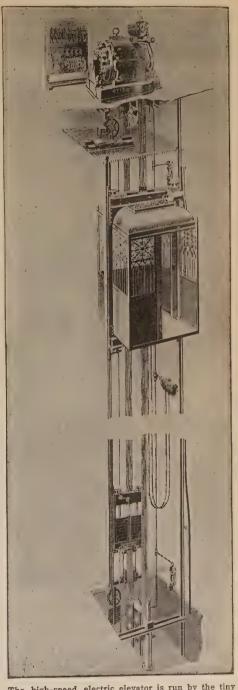


This is a common type of hydraulic elevator. piston or plunger works in the tank of water, and as it is pushed out or drawn in, raises or lowers the car. A part of the side of the tank is removed so that you can see the piston. The rope is run several times around the pulleys, so that when they move a foot the car moves several. 

# TWO TYPES OF PASSENGER ELEVATORS

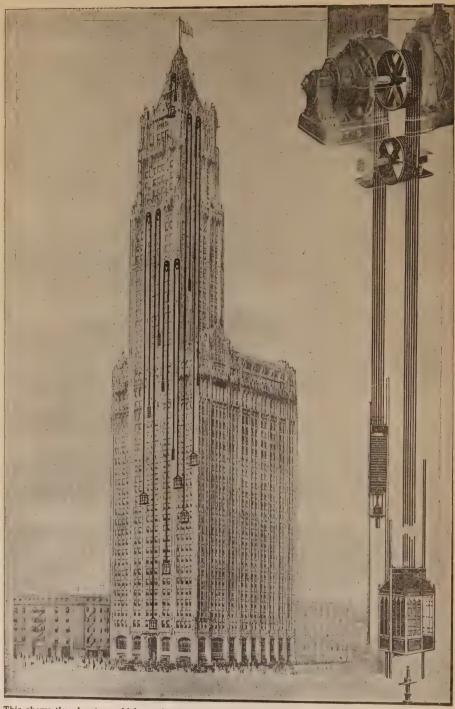


This hydraulic elevator is pushed up by the pressure of water which is forced into the pipe in which the plunger at the bottom of the car slides. When the water is allowed to run out the car descends. The iron pipe must be as far in the ground as the building is high. The break across the machinery means that we cannot show the whole height.



The high-speed electric elevator is run by the tiny electric motor at the top, which turns the sheaves in either direction, or stops, according to the position of the tiny switch near the door of the car. The distance from the bottom to the top of an elevator shaft like this may be several hundred feet. We show you here only the top and the bottom.

# ELEVATORS IN A HIGH BUILDING



This shows the elevators which run in the tower of the Woolworth Building in New York City. Since the number of people on the top floors is not large, not all the elevators run to the very top. The small elevator highest up, carries people from the top floor to the platform near the top of the tower. These are only a few of the twenty-six elevators in this building. Some buildings have even more.















